DEPARTMENT OF AYURVEDA
MINISTRY OF HEALTH
SRI LANKA

UNIVERSITY OF KELANIYA | Faculty of Graduate Studies

2nd International Research Symposium on Traditional Medicine

"One Health for Sustainable and Healthy Living of Humans, Animals, and Ecosystems"

Organized by
The Faculty of Graduate Studies, University of Kelaniya

In collaboration with
The Department of Ayurveda, Ministry of Health, Sri Lanka

AyurEx
COLOMBO
2024

ABSTRACTS

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2nd International Research Symposium on Traditional Medicine (AyurEx Colombo) – 2024

Proceedings of the 2nd Symposium

"One health for sustainable and healthy living of humans, animals, and ecosystems"

Abstracts

3rd – 5th May 2024

AyurEx COLOMBO 2024

The Faculty of Graduate Studies, University of Kelaniya, Sri Lanka
in collaboration with
The Department of Ayurveda, Ministry of Health, Sri Lanka

Proceedings of the 2nd Symposium

International Postgraduate Research Symposium (AyurEx Colombo) – 2024

"One health for sustainable and healthy living of humans, animals, and ecosystems"

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Message from the Minister of Education

I am pleased to send my good wishes for the 2nd International Research Symposium on Traditional Medicine, to be held during May 3-5, 2024, at the UCFM Tower, Faculty of Medicine, University of Colombo.

Global trends in education demand new knowledge, skills, values, and attitudes to be acquired by citizens to lead productive healthy lives and make informed decisions in their work roles. Health has become a global concern in many dimensions of human activity. This symposium, organized around the theme, "One health for all through traditional medicine" would be helpful to promote a multidisciplinary collaboration for a healthier world for all, covering all aspects of health care for humans, animals, and the environment.

The Ministry of Health, and the Department of Ayurveda of the Government of Sri Lanka, in collaboration with the Faculty of Graduate Studies, and the University of Kelaniya, have initiated to dedicate a platform to share knowledge and skills relating to multi-disciplinary research on the traditional medical sector.

I express my sincere gratitude to the Minister of Health, the State Minister of Indigenous Medicine, and the Department of Ayurveda for giving leadership to this international event. I also thank the Vice-Chancellor, the University of Kelaniya, the Faculty of Graduate Studies, and the eminent speakers and academics who are making contributions to this symposium.

I wish this symposium all success!

Hon. (Dr.) A. D. Susil Premajayantha (M. P.)
Minister of Education
Leader of House, Sri Lanka Parliament

Message from the Minister of Health

It is an immense privilege that as the Minister of Health for the Ministry of Health, Sri Lanka, provide guidance and leadership for the 2nd International Research Symposium on Traditional Medicine which will be held on the 3rd 4th, and 5th of May 2024 at UCFM Tower, Faculty of Medicine, University of Colombo.

The Government of Sri Lanka is committed to ensuring Universal Health Coverage to all its citizens. The Cabinet of Ministers approved the Policy on Healthcare Delivery for Universal Health Coverage in 2018, which could be considered the foundation for preserving Universal Health Coverage in the country. This would also pave the way towards achieving Sustainable Development Goals.

The Ministry of Health, Indigenous Medicine sector and the Department of Ayurveda are committed towards successful operationalization of the policy, which focuses on reorganizing and strengthening the primary healthcare delivery system and exploring new frontiers in the field of traditional medical systems through evidence-based research.

This symposium is a platform established by the Ministry of Health, and the Department of Ayurveda of the Government of Sri Lanka, in collaboration with the faculty of Graduate studies, the University of Kelaniya to propagate the traditional medical system globally in its true sense. This global platform provides ever evolving scientific exchange between modern science and traditional medicinal systems.

The impact of an international research symposium encompasses the areas of evidence-based multidisciplinary research, innovations, biodiversity, ecosystem, and one health approach through traditional medicine to the global outreach for the benefit of society and mankind.

I extend my sincere appreciation state minister of the indigenous sector, the Department of Ayurveda, the faculty of Graduate studies, the University of Kelaniya, and the organizing committees for their tremendous support in making this event a success.

Hon. (Dr.) Ramesh Pathirana
Minister of Health
Sri Lanka

Message from the state minister of Indigenous Medicine

It is with great pleasure and immense honor that I stand before you as the state minister of Indigenous Medicine, to address the inauguration of the AyurEx 2024, the 2nd International Research Symposium on Traditional Medicine, organized by the Ministry of Health, the Department of Ayurveda of Sri Lanka, in collaboration with the Faculty of Graduate Studies, University of Kelaniya.

Once Director General of the World Health Organization (WHO) emphasized that, the countries around the world should work towards unlocking the power of traditional medicine and provide evidence and action-based suggestions that can be interpreted into a global strategy.

In order to achieve the vision of preserving Universal Health Coverage in the country, The Sri Lankan government dedicated and adopted the Policy on Healthcare Delivery for Universal Health Coverage in year 2018, paving the road for reach the Sustainable Development Goals.

This international forum organized and conducted by the Ministry of Health and Department of Ayurveda, in collaboration with the University of Kelaniya, will facilitate well accomplished researchers, academicians, Traditional Medical practitioners and Herbal drug manufacturers regarding the research-based studies.

Furthermore, this event will Motivate, reform and enhance the primary healthcare delivery system, and seek new horizons in the field of traditional medical system.

I would like to express my sincere gratitude to University of Kelaniya, Ministry of Health and Department of Ayurveda and all the supporters who have generously contributed and who have worked tirelessly to make this event possible.

While collaborating in this symposium. Together, we can turn knowledge into action and pave the way for a better tomorrow

Thank you, and may this symposium be a resounding success

Hon. Mr. Sisira Jayakody
Minister of State for Indigenous Medicine
Sri Lanka

Message from the Secretary of the Ministry of Health

It is with great pleasure and immense pride that as the Secretary of the Ministry of Health to make a remarkable message to the 2nd International Research Symposium on Traditional Medicine which will be held on the 3rd 4th, and 5th of May 2024 at UCFM Tower, Faculty of Medicine, University of Colombo.

The Ministry of Health, and the Department of Ayurveda of the Government of Sri Lanka, in collaboration with the faculty of Graduate studies, the University of Kelaniya, have initiated to dedicate the global platform to share knowledge and skills to multidimensional, multi-disciplinary, inclusive, and culturally appropriate evidence base research related to the traditional medical sector.

The World Health Organization (WHO) urged that countries around the world work towards unlocking the power of traditional medicine and provide evidence and action-based suggestions that can be interpreted into a global strategy. Consequently, this momentous event was taken as an initiative to generate a global forum committed to the concept of "traditional medical systems for one health."

I express my deepest appreciation to the keynote speakers, eminent speakers, presenters, and panelists who have offered to devote their time and expertise to make this event a resounding success. Your contributions would be instrumental in shaping the discourse and expanding our horizons.

I'd also like to extend my gratitude to the Department of Ayurveda, the university of Kelaniya, the organizing committees and all the individuals who have worked tirelessly behind the scenes to ensure the smooth execution of this event.

This international symposium provides a wealth of diverse experiences, perspectives, and immense knowledge. Each of you holds a unique piece of the puzzle that can help us find groundbreaking solutions regarding the global concept of one's health.

Hence, we embark on a journey to explore new horizons and discover the depths of the concept of one health, regarding Traditional Medical Systems.

Dr. P.G. Mahipala
Secretary of the Ministry of Health
Sri Lanka

Message from the commissioner general of ayurveda, Sri Lanka

As the commissioner General of Ayurveda, it gives me immense pleasure to host the 2nd International Research Symposium on Traditional Medicine, on the 3rd, 4th and 5th of May 2024 at UCFM Tower, Faculty of Medicine, University of Colombo. International Research Symposium - AyurEx Colombo - 2024 is poised to be the most prominent and comprehensive event organized and dedicated to traditional medicine, providing a unique platform for stakeholders, experts, research, and practitioners from across the globe to converge, collaborate, and explore the vast potential of traditional medical practices.

The Ministry of Health, and the Department of Ayurveda of the Government of Sri Lanka, in collaboration with the faculty of Graduate studies, University of Kelaniya, have initiated to dedicate the global platform to share expertise, knowledge, and skills to cutting-edge research interventions and inventions on Traditional Medicine.

Traditional Medicine (TM) to today's emerging health challenges, it is time to exchange expertise, knowledge, and skills among academics, scientists, practitioners, entrepreneurs, and researchers through cutting-edge research interventions and innovations.

The Director General of the World Health Organization (WHO) highlighted "unlocking the power of traditional medicine and providing evidence and action-based suggestions that could be interpreted into a global strategy." Accordingly, this initiative created an international forum focused on the "traditional medical systems for one health". Moreover, this international conference provides a scientific platform to eminent researchers, academicians, physicians, traditional and medical practitioners, manufacturers, and exporters of Ayurveda for evidence-based research.

I express my thanks to the Minister of Health, Hon. Ramesh Pathirana, State Minister of Indigenous Medicine, Hon. Sisira Jayakody, Secretary, Ministry of Health Dr. P.G Maheepala, the Vice Chancellor, University of Kelaniya, the Dean of the faculty of graduate studies, and everyone who has been instrumental in Organizing this symposium from all members to the Patrons, Advisors, and the Organizing Committee, for offering in their hearts and soul for the grand success. I am grateful to the presenters and the participants for their thought-provoking contributions. I extend our very best wishes to you wherever you may be.

Last but not least, our sponsor, Lever Ayush and partners, we are grateful for your support, which is to be powered us to bring this event to fruition. Your commitment to the advancement of knowledge and innovation is deeply appreciated.

As we embark on this intellectual journey together, let us keep an open mind, and engage in constructive dialogues, while collaborating in this symposium. Together, we can turn knowledge into action and pave the way for a better tomorrow.

Thank you, and may this symposium be a resounding success!

Dr. Dammika Abeygunawardena
Commissioner General of Ayurveda
Sri Lanka

Message from the Guest of Honour

Vice-Chancellor, University of Kelaniya

It is with great pleasure and honour that I extend my warmest greetings to all those involved in the 2nd International Research Symposium on Traditional Medicine - *AyurEx Colombo 2024.* First and foremost, I wish to commend the organizers for their dedication and hard work in bringing together experts, eminent and young researchers, and practitioners from around the globe to explore and celebrate the rich heritage of traditional medicine in Sri Lanka.

The theme for the *AyurEx Colombo 2024* "*One Health for sustainable and healthy living of humans, animals, and ecosystems*" has been selected to cover diverse avenues to reap the maximum benefit. Careful review of the abstracts that are to be presented under 12 subthemes, amounting to nearly 300 individual presentations, speaks to the gravity, depth and breadth of research being conducted in this field. The symposium's focus on topics such as Vrikshayurveda, Satvarurveda, metabolic disorders, traditional practices in food and nutrition, and the impact of traditional medicine on health and wellness reflects the multifaceted nature of traditional medicine's role in contemporary healthcare.

As a practitioner of Western Medicine, I am well aware of the fact that many of the pharmaceutical products that we use today are derived from nature and traditional knowledge, including landmark drugs such as aspirin and artemisinin. It was the effective use of traditional knowledge that enabled scientists to achieve their breakthrough discoveries and bring these drugs into widespread use. Several such examples highlight the importance of digging into our hidden treasures so that we can tap into their full potential and bring them to market with proper scientific insights.

I wish all the participants and the organizers of *AyurEx Colombo 2024* fruitful deliberations and a very successful meeting!

Senior Professor Nilanthi Renuka de Silva
Vice-Chancellor
University of Kelaniya
Sri Lanka

Message from the symposium Co-Chair and Dean, Faculty of Graduate Studies

About 80% of population in Africa and 40% of population in many other parts of the world use traditional medicine to help meet their health care needs. Increased side effects, high cost, microbial resistance and lack of curative effects for some chronic diseases are major concerns of synthetic drugs. Traditional medicines are known to be 'clinically proven' for non-toxicity or less toxicity and effectiveness by the generations-long use of them. However, the modern world is curious, and mere reference to classical texts or generations-long use may not be sufficient as evidence of safety and efficacy of traditional medicine. Therefore, scientific evidence-based research is vital for wider global recognition and acceptance of traditional medicine.

I believe that this symposium will be a platform for traditional medical practitioners, western medical practitioners, students, researchers and scientists to interact and draw strategies to initiate regional and global-level research in quality control, safety, efficacy, disease diagnosis and many other aspects of traditional medicine.

Wishing you a fruitful experience,

Senior Professor N. A. K. P. J. Seneviratne
Symposium Co-Chair & Dean
Faculty of Graduate Studies
University of Kelaniya
Sri Lanka

Message from the symposium Chair

It is with great pride and immense pleasure that I extend this message for the 2nd International Research Symposium on Traditional Medicine, AyurEx Colombo 2024, centred around the theme of 'One Health for sustainable and healthy living of humans, animals, and ecosystems.' We warmly welcome all participants to Colombo from 3rd May to 5th May 2024. This symposium, organized in collaboration with the Department of Ayurveda, aims to promote the 'One Health' approach to achieve optimal health and sustainability for humans, animals, and ecosystems by leveraging traditional medicine for the fulfilment of Sustainable Development Goals.

The University of Kelaniya stands as a beacon of innovative research, giving top priority to translating recent advances in herbal medicine into practical applications. The symposium's objectives are sharply focused, not only fostering networking among stakeholders but also facilitating knowledge sharing and technology transfer to enhance value addition in traditional medicine products. Emphasizing the bridge between research and market application through rigorous research and quality control measures, the university's diverse research activities will further enrich its contributions.

The symposium will delve into various subthemes such as Vrikshayurveda and Satvarurveda with a holistic approach, Metabolic disorders in humans and animals, Zoonotic diseases and traditional medicine, Pharmacology, Pharmaceutics, and Clinical trials, along with Preventive and Curative measures for health issues. Additionally, discussions will range from advanced medical & surgical practices in traditional medicine to Eco-tourism, Yoga, and Wellness, and High-tech innovations in traditional healthcare systems. Topics including Toxic effects, Sustainable Cultivation, organic farming, conservation of medicinal plants, antimicrobial resistance, environmental contamination, climate change, biodiversity, and habitat loss will also be explored. AyurEx Colombo 2024 serves as a platform for acquiring new knowledge, enhancing advanced research skills, strengthening networking with early career researchers, and fostering Private-Public Partnerships (PPP).

With an anticipated participation of around 400 authors and attendees, including esteemed keynote and plenary speakers from Sri Lanka and India, the event promises a diverse array of insights and discussions. We are delighted to extend a warm welcome to all distinguished guests and well-wishers of AyurEx Colombo 2024. The tireless efforts of the organizing committees underscore the collaborative spirit behind the symposium's success. I express my sincere gratitude for the support and guidance provided by the Vice Chancellor of the University of Kelaniya, Senior Professor Nilanthi de Silva, Dean of the Faculty of Graduate Studies, Senior Professor Kapila Seneviratne, and Commissioner General of the Department of Ayurveda, Dr. Dammika Abeygunawardana. We owe a debt of gratitude to the organizing committee, as well as all academic and non-academic staff, for their unwavering support and dedication to the success of the symposium.

We wish everyone a fruitful and enriching experience at AyurEx Colombo 2024, filled with valuable knowledge and meaningful interactions.

Senior Professor P A Paranagama
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Abstract ID – 13

Use of cow urine in *vrikshayurveda* to increase the productivity of up-country vegetables in Sri Lanka

P. Senpeetro[1,3], C. S. De Silva[2], G. P. Gunaratne[3] and S. De Silva[1*]

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Sri Lanka is an agricultural country and was self-sufficient during decades ago with sustainable water management and organic agricultural practices. With the green revolution, agricultural activities drastically changed to use of chemical fertilizers and pesticides. Research findings revealed that there is severe groundwater pollution in the dry zone areas and farming communities consume groundwater face serious health hazards such as chronic kidney disease (CKD), cancer and other water related health problems. *Ayurveda* is a medical system that was developed and practiced since more than 5000 years ago and this ancient medical system is called the "mother of all healing". While *Ayurveda* mainly deal with the various aspects of human life, another branch developed, which dealt with the science of plant life; *Vrikshayurveda*. In *Vrikshayurveda,* cow urine is extensively used as liquid fertilizer and to control several plant diseases. Therefore, a greenhouse pot experiment was conducted at the Tea Research Institute, Talawakella with five different treatments; No fertilizer (Control), Department of Agriculture recommended fertilizer, 20%, 40% and 60% cow urine to identify the best percentage of cow urine as organic fertilizer and medicine for plant diseases based on the growth and yield of capsicum (variety-Muria) and cabbage (variety-Onex). Results showed that the height of plants, yield, and the plant nutrient potassium were significantly high in the 40% and 60% cow urine treated capsicum and cabbage respectively and it is not significantly different from the group subjected to application of inorganic fertilizer. It is reported that cow urine has biologically effective compounds that facilitate the overall growth, development, and protection of the plants. Some of these compounds include proteins, fats, and carbohydrates. The amino acids that make up proteins have various effects on plant protection, especially glycine and, proline which are important for providing plant immunity in abiotic stress situations. Therefore, according to *Vrikshayurveda*, farmers could use cow urine to increase the productivity of crops as did our forefathers.

Keywords: Cabb*age,* Capsicum, Cow urine, *Vrikshayurveda*

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Abstract ID -35

Vrikshayurveda concept of *Kunapa jala* as a cost-effective organic fertilizer solution for hydroponics to grow *Lactuca sativa* (lettuce - *Grand rapids)*

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[3]Faculty of Engineering and Technology, SLTC Research University, Homagama

Vrikshayurveda had established itself as a unique field by 550 BC and it mainly deals with the healthy growth, productivity of plant and plant disease prevention. *Kunapa jala* which is the production of fermented liquid manures from organic wastes to grow plants is popularly mentioned in *Vrikshayurveda*. It is reportedly the first and most significant innovation in the world agricultural history. The literal meaning of *kunapa* is "smelling like the dead or stinking". *Kunapa jala* is a natural organic product derived from animal and plant products that contain a significant amount of one or more primary nutrients such as nitrogen, phosphorus, and potassium, which are essential for plant growth. A similar concept was used to develop an organic solution for hydroponics in this study. Hydroponics is a soilless cultivation technique and Albert solution is the inorganic liquid medium used for hydroponic culture. Therefore, this study was designed to introduce organic fertilizers solution for hydroponic culture. Food waste, namely pineapple peel, fish and shrimp wastes are generated in large quantities in Sri Lanka. However, these food wastes are not properly utilized into valuable byproducts. Organic hydroponic medium using food waste extracts, 25% (T1), 50% (T2) 75% (T3), 100% (T4) control (Albert's solution) were prepared and tested on *Lactuca sativa* (Lettuce *Grand Rapido 344*). The experimental setup was arranged in a completely randomized design (CRD) with eight replicates. Growth and yield parameters were measured seven weeks after planting and analysed using Statistical Analysis Software. Significantly high number of leaves, shoot height, root length, plant height, plant weight, leaf weight, root weight, and root volume was recorded in the control group and the, 75% and, 100% liquid solution withno significant difference between 75%, 100% and the control groups. The 75% solution is found to be more commercially viable than 100% due to cost effectiveness. Therefore, 75% solution can be used as an alternative to Albert's solution in hydroponics.

Key word: Food waste, Hydroponics, Lettuce, Organic liquid

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Abstract ID - 107

Preparation and characterization of *Lokanatha Rasa* – An Ayurveda mercurial preparation

S.K.M.K. Herapathdeniya[1*], P.A. Paranagama[2] and J.G.S. Ranasinghe[3]

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Rasa Shastra stands as one of the main branches within Ayurveda pharmaceutics, with Mercury serving as its primary constituent. *Lokanatha rasa* (LKN) emerges as a promising mercurial preparation, as documented in various Ayurveda *Rasa Shastra* texts, particularly for addressing liver and spleen disorders. Our study aimed to synthesize LKN following standardized protocols outlined in the classical *Rasa Shastra* text Rasendra sara sangraha. Subsequently, we conducted comprehensive physicochemical characterization utilizing advanced instrumental techniques, including X-ray diffraction (XRD), and Fourier transform infra-red spectroscopy (FTIR). Notably, our XRD analysis revealed $CaCO_3$ exhibiting the highest peak in a hexagonal structure within the formulation. Moreover, LKN comprised constituents such as metacinnabar, hematite (Fe_2O_3), and free sulfur. FTIR spectroscopy depicted broad peaks at 711 cm^{-1} and 1792 cm^{-1}, where the latter indicated the presence of C=O stretching. XRD analysis showed spherical particles with particle sizes spanning from 1 nm to 200 nm. Additionally, these observations highlighted crystallite agglomeration within the LKN formulation. Our findings underscore the pivotal role of modern analytical techniques in assessing the quality aspects of LKN. We believe that these research insights are imperative for the further advancement and standardization of LKN within Ayurvedic practice.

Keywords: Lokanatha rasa, Physicochemical, Rasa Shastra, Standardization

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Abstract ID - 109

Relevance of Ayurvedic concepts mentioned in *Bhesajjakkhandhakaya* for modern day healthy life

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Buddhism, enduring over 2500 years, has fostered a deep connection with the environment, with Ayurvedic treatments exemplifying its commitment to a healthy lifestyle through nature. Main objective of this study was to raise awareness of Ayurvedic wisdom principles embedded in Buddhist texts applicable for a modern-day healthy life. Qualitative methodology, analysing primary Buddhist sources, relevant scholarly articles and publications was employed for the investigation. The major findings of the study are that the holistic approach Bhesajjakkhandhaka emphasizes holistic health, considering physical, mental, and spiritual aspects. Monks were encouraged to maintain balance through mindful living, ethical conduct, and proper nutrition. Specific herbal formulations were recommended for various ailments. For instance, for Autumnal illness, the recommended treatment involved decoctions of neem leaves and turmeric. For Wind diseases, herbal inhalations with eucalyptus and camphor were recommended and cooling herbs like sandalwood and coriander were recommended for fever. The monks were advised on lifestyle practices such as dietary moderation, avoiding excess and consuming simple, nourishing foods, eating mindfully, appreciating each morsel. Meditation was recommended as a healing practice. In addition, communal well-being and a healthy sangha was emphasized for contributing to spiritual progress. Bhesajjakkhandhaka serves as a timeless guide, bridging ancient wisdom with contemporary health practices. Modern people can draw inspiration from these teachings as an intergenerational knowledge and to cultivate physical vitality, mental clarity, and compassionate care for self and others. By integrating Ayurvedic principles into their lives, they honour the legacy of the Buddha's holistic vision for well-being. The Ayurvedic techniques offer a comprehensive and holistic approach for health. In the contemporary society, a considerable number of individuals derive substantial benefits from Ayurvedic practices such as natural remedies, diet and lifestyle, exercise, meditation, community health, prevention over cure, personalized medicine, immunity boosting, stress reduction of both monks and laymen that complements modern healthy life.

Keywords: Ayurveda, Buddhism, Health, Holistic, Monastic

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Abstract ID - 118

Efficacy of Ayurvedic intervention in managing microfilaria in domestic dogs: A case study

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Microfilaria, a common parasitic infection in domestic dogs, frequently spreads via mosquito bites. Larvae mature into adult worms in the bloodstream, releasing microfilariae. These can invade multiple bodily systems, risking vessel obstruction and organ damage. The severity of infection varies, emphasizing preventive measures and veterinary care for effective management. This case study explores the effectiveness of Ayurvedic treatment in managing Microfilaria in a nearly 9-year-old male domestic dog of crossbred origin. The dog exhibited signs of loss of appetite, vomiting, and absence of passing stools for five days, prompting suspicion of Microfilaria. Confirmation was obtained through a blood smear analysis, revealing the presence of microfilariae. The clinical manifestations, including weight loss compared to previous weight records, weakness, loss of balance, and difficulty focusing the eyes, suggested that both the digestive and nervous systems were involved in the case. Allopathic treatments such as antibiotics, antihistamines, steroids, antacids, and vitamin B complex were administered internally, while external application of *'Maha Narayana Thaila'* on the shaved pelage aimed to aid nerve recovery over six months. Despite initial improvement from the allopathic treatments, unresolved digestive issues persisted, leading to additional treatment with one pinch of *'Ashwagandha Churna'* with bee honey at a daily dosage. Pharmacological analysis revealed the efficacy of *Maha Narayana Thaila* in managing neuro-musculoskeletal disorders, with *Ashwagandha Churna* exhibiting adaptogenic, anabolic, neuroprotective, anxiolytic, anti-inflammatory, anti-arthritic, and digestive activities. The application of *Ashwagandha Churna* on the tongue facilitated medicinal absorption, enhancing recovery. Following treatment, the dog's digestion normalized, and its anxiousness and insomnia ceased, indicating a successful outcome. Since allopathic treatments do not offer complete protection for microfilaria symptoms in domestic dogs, this case study examines the potential of Ayurvedic pharmaceutics for controlling microfilaria symptoms in domestic dogs, providing valuable insights into alternative treatment modalities for this parasitic infection.

Keywords: Ayurveda pharmaceutics, Domestic dogs, Microfilaria, *Satvarurveda,* Veterinary medicine

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Abstract ID -250

Comparative analysis of traditional *Ayurveda* concepts with modern perspectives on health and management of elephants

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Ayurveda, the ancient Indian medical system, acknowledges the significance of elephants, as evident in its detailed accounts. It is crucial to bridge the gap between ancient wisdom and modern practices in elephant management, especially in integrating traditional knowledge within the one health framework to enhance elephant well-being and ensure environmental sustainability. Through interdisciplinary analysis, this research aimed to integrate traditional *Ayurveda* concepts of elephant health with modern One Health framework, emphasizing the interconnectedness among human, animal, and environmental health. The objective was to compare traditional *Ayurveda* knowledge with modern perspectives, specifically meticulous review, and analysis of insights from ancient *Ayurveda* texts attributed to the sage *Palakapya* like *Gajashashtra* and *Hasthayurveda* in the context of contemporary understandings of elephant health and management. For this study, data was collected comprehensively encompassing both thorough review and analysis of the ancient *Ayurveda* texts alongside an examination of modern literature and approaches, including relevant books and research articles. Through a combined approach, this study has uncovered valuable insights into elephant health and management. It delved into the comprehensive guides provided by *Gajashastra*, which focused on elephant well-being, and the detailed coverage of anatomical and physiological aspects, diseases, and treatments found in *Hasthayurveda*. These texts revealed *Ayurveda's* holistic approach to animal health, extending beyond human health to encompass all living beings. Furthermore, comparing traditional *Ayurveda* knowledge with modern perspectives within the one health framework has highlighted the interconnectedness among human, animal, and environmental health. These findings can inform holistic elephant conservation strategies, promoting ecosystem sustainability and harmonious coexistence between humans and wildlife.

Keywords: *Ayurveda*, Elephant health, Environmental sustainability, One health framework, Traditional knowledge

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Abstract ID -283

Harmonizing Ayurveda Wisdom with One Health: A Review

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One Health is an integrated, unifying approach to balance the health of people, animals and the environment while recognizing the interdependence of each sector, advocating for collaborative efforts to address complex health issues. This review attempted to gather the basic Ayurveda principles and different aspects mentioned in Ayurveda literature which could be utilized to enrich One Health framework. The data acquisition encompassed a comprehensive exploration of Compendia, Ayurvedic textbooks, and scholarly journal articles. This array of sources will be subjected to rigorous systematic review, facilitating the extraction of pertinent information and insights. Through this meticulous process, we aim to undertake a comprehensive examination of Ayurvedic principles within the framework of One Health. The concept of One Health intends to preserve human, animal, and environmental health through surveillance, prevention, and mitigation using a collaborative and trans-disciplinary approach. Ayurveda, the "science of life," deals with human beings by preserving the health of the healthy and curing the ill. When defining overall well-being, Ayurveda includes the social and spiritual aspects indicating the importance of the outer environment for health. *Pashuayurveda* deals with the health of animals, while *Vrikshayurveda* deals with plant health. The function of the human body and nature follow the same rhythm. *Panchamahabhuta* doctrine (PMB) mentions that all living and non-living objects in the Universe are made from five basic elements, namely earth, water, fire, air, and space. When there is an imbalance in the PMB constitution, it causes a disease or an unhealthy situation. This lays out a foundation for a basic structural interconnectedness of all living and non-living things. *Samanya vishesha siddhantha* (SVS) doctrine describes the process of balancing the imbalance of PMB to restore the health or healthy status of an environment. As Human beings- plants –and animals, all these components are made from similar and common basic elements, and principles of treatment could share the same stage. It could be concluded that these tenets of PMB and SVS could be amalgamated into the One Health concept to address the health issues of all sectors by reducing health disparities.

Keywords: One health, *Pashuayurveda*, *Panchamahabhuta, Samanya vishesha Siddhantha*, *Vrikshayurveda*

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Abstract ID -291

A preliminary literature review on medicinal orchids of Sri Lanka.

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Ayurveda is the sacred science of prolonging healthy life and recommends a vast number of formulations for the purpose produced from natural resources. Ashtavarga of Ayurveda and Rajavarga of Sinhala traditional medicine are 2 groups of herbs, possessing potent therapeutic actions. Surprisingly, some herbs of Ashtavarga and Rajavarga are orchid species. All Rajavarga, except Garudaraja, are very rarely recorded in Sri Lanka. This fact is also true for the Ashtavarga, being very rare even in Himalayan regions. Their rarity is well-known and recognized as a limitation of this study. Though many researches are found on orchids horticulture, only a few researches are found on their medicinal value, resulting in this study reviewing the therapeutic uses of orchids. To compile the data, Ayurveda texts, textbooks on orchids and research articles were extensively used. "Udawaediya" is the Sinhala vernacular name for orchids. This study resulted in collecting a total of 28 orchid species with medicinal properties, and they belong to the following genera. Acampe, Apostasia, Arachnis, Arundina, Calanthe, Cleisostoma, Cymbidium, Dendrobium, Eulophia, Geodorum, Goodyera, Grammatophyllum, Habenaria, Liparis, Oberonia, Oncidium, Satyrium, Spathoglottis, Taprobanea, Vanda and Vanilla. Their therapeutic actions are scientifically proven. They possess anti-ageing, antibacterial, anti-inflammatory, anti-rheumatism, antifungal and female contraceptive effects. Therefore, these medicinal orchids can be administered in the following disease conditions, such as nervous disorders, bleeding wounds, earache, headache, abdominal pain, rheumatic pain, snake bites, scorpion stings, fractures, tearing, fever, jaundice, hepatitis, skin diseases, oedema, food poisoning, cholera, fainting, sexually transmitted infections and many more. The above results clearly show that not only the Ashta or Rajavarga, but many other commonly available ornamental orchid species also possess potent therapeutic value.

Keywords: Ashtavarga, Rajavarga, Orchids

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Metabolic disorders in human and animal

Abstract ID - 24

Acceptance of hemodialysis among CKD patients

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Evidence suggests that there are higher rates of deaths due to ChronicmKidney disease (CKD) throughout the world. In Sri Lanka, prevalence of CKD has increased in numbers especially in Anuradhapura district. Hemodialysis (HD) is one of the effective treatment methods of renal replacement therapy. There is a low chance of receiving HD among CKD patients leading to a very high mortality. We investigated the existing causes that are significant for accepting HD among patients with end-stage renal disease (ESRD) in Padaviya, Anuradhapura district, Sri Lanka, where the CKD prevalence is high. Prospective study was done in the Nephrology Clinic, Base Hospital, Padaviya. Observational type descriptive cross-sectional study was carried out on 200 ESRD patients requiring immediate HD, over seven months. After obtaining informed consent the participants were given an interviewer-administered questionnaire that included questions on different aspects of knowledge about dialysis and the reasons to accept and refuse dialysis for the treatment of ESRD. Sixty-one patients (30.5%) agreed to receive HD. Among them, thirty-five participants (57.4%) were between 44-60 years of age. Forty patients (65.6%) accepted HD as they considered it as a good treatment method for CKD and thirty-five patients (57.4%) agreed to receive HD because they have been explained on the importance of HD by hospital staff. There was a statistical significance between prior knowledge on importance of HD and agreeing to receive HD ($p<0.05$). Although the proximity to the hospital is not significant in the decision of receiving HD, more of the participants (n=19, 31.2%) who have opted for HD, travel 10-15 km to the hospital. The results indicated that various patient-related and health service-related factors are significant in the decision of accepting HD treatment. Availability and access to HD facilities is required to motivate the patients in accepting HD treatment.

Keywords: Acceptance of hemodialysis, Chronic kidney disease, Hemodialysis

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Abstract ID - 55

Efficacy of ayurveda treatment regimen in the management of complications due to Sotos syndrome – A case study

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Sotos syndrome, also called cerebral gigantism, is an uncommon hereditary condition that causes children to grow faster than other children of the same age. A nine-year-old boy pre diagnosed for Sotos syndrome based on a genetic test was admitted to the National Ayurveda Teaching Hospital with complaints of on and off right patella dislocation and abnormality walking, recurrent respiratory infections and learning disability since the age of five years. The Objective of this study was to evaluate the efficacy of Ayurveda treatment regimen in managing complications of Sotos syndrome. The disease was diagnosed as *Vata Vyadhi* and the treatment plan included internal and external Ayurveda remedies for 7 weeks duration, about 49 days each round. The treatment plan was designed to regulate functions of *Vata Dosha*, to prevent recurrent patella dislocation and to correct the walking pattern. The treatment plan included, *Tridosha Shamana Chikitsa* with *Nidanapariwarjana*, *Anthahparimarjana* with the combination of *Thrikatukadi* decoction, *Chandra Kalakaya*, *Balachathurbadra Choornaya* given twice daily, *Wachadi Choornaya* ¼ teaspoon given at night, *Saraswathadi Choornaya* ¼ teaspoon given in the morning and, Lakshadi Lepaya mixed with bee honey applied over the knee joint was prescribed for first two weeks. Then for third, fourth and fifth weeks *Dashamolan Panchakolan* decoction and *Danthimoladi* decoction given twice daily, combination with other drugs given in 1st and 2nd weeks. As *Bahiparimarjana* treatment *Sheersha - Hastha Pada Abyanga*, *Shirodara*, *Shirovasti*, *Sarvangadara* were done respectively in each week. The same indoor treatment procedure was repeated after two months from the end of the first round. After two treatment rounds a satisfactory improvement was observed. Patella dislocation, recurrent respiratory infection as measured by the incidence and severity calculated based on the four- point scale recommended by the American Academy of Allergy, Asthma and Immunology and the memory level based on memorizing school lessons and writing skills showed improvement. The medications consist of *Srothas Shodana*, *Vata Shamana*, *Vata Anulomana* and *Snayu Uththejaka* properties. However, further clinical studies with more patients should be conducted to prove the efficacy of this protocol. This case study shows that Ayurveda remedies may be applicable in managing complications of Sotos syndrome.

Keywords: Ayurveda management, Sotos syndrome, *Balaka Vata Vyadhi*, *Sahaja roga*, *Prana Vayu*

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Abstract ID -134

Evaluation of bioactivities of a polyherbal formula practiced in the indigenous medical system in Sri Lanka

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Lipakadaliee Himbutumulee adee decoction is a conventional hot aqueous extracted preparation used in traditional and Ayurveda medical systems to support the management of diabetes mellitus. This polyherbal formula includes the *Musa sapientum*, *Salacia reticulata*, *Phyllanthus emblica*, *Tribulus terrestris*, *Santalum albam*, and *Sida cordiforlia*. The objective of the present study was to quantify the phenolic, flavanol, and tannin content and to investigate the existence of antidiabetic, antioxidant, and anti-lipase activities. Total phenolic content and total flavonoid content were determined by the Folin Ciocalteu and Aluminum Chloride method respectively. Antioxidant activities were evaluated using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay, 2,2'-azino-bis-(3-ethylbenzothiazoline-6-sulfonic acid (ABTS) radical scavenging assay, and ferric reducing antioxidant power (FRAP). Pancreatic lipase inhibition assay and alpha-amylase inhibition assay were used to investigate the anti-lipase, and antidiabetic properties accordingly. The results obtained showed that the methanolic extract exhibited higher total phenol content (TPC) as compared to the dichloromethane and hexane extracts which are 111.2 mg gallic acid equivalent (GAE)/g for methanolic extract, 42.0 mg GAE/g for dichloromethane extract and 4.0 mg GAE/g for hexane extract. The methanolic extract exhibited higher total flavonoid content (TFC) as compared to the dichloromethane (DCM) and hexane extracts which are 39.1 mg quercefin equivalent (QCE)/g for methanolic extract, 6.4 mg CE/g for DCM extract, and 2.1 mg CE/g for hexane extract. The total condensed tannin content for methanol and DCM extracts is 4.9 ± 0.0, and 0.8 ± 0.0 mg catechin/g respectively. FRAP showed the highest antioxidant activity. The percentage inhibition values of α amylase inhibitory activity of methanol and DCM showed 50.8%, and 31.2% inhibition compared with positive control Acarbose which recorded 52.0% inhibition. Orlistat showed a pancreatic lipase inhibition of 68.4 % while methanolic extract showed 60.5% inhibition. The polyherbal formula exhibits remarkable α-amylase inhibitory activity in the methanolic extract, and this polyherbal formula has the potential to be used in the treatment of diabetes mellitus.

Keywords: Antidiabetic, Anti-lipase, Antioxidant, Diabetes mellitus, Herbal formula

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Abstract ID -138

Evaluating the efficacy of Ayurveda management of *Galaganda* vis-à-vis Goiter: A case study

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In *Ayurveda, Vagbhata Samhita* describes *Galaganda* as a *Gala Roga* and identifies three types. *Kaphaja Galaganda* presents clinical features like *Sthira, Savarna, Guru, Ugra Kandu, Sheeta, Mahat, Chira Vruddhi, Chira Paka, Manda Ruja*. It may be correlated with goiter in both hyper and hypothyroidism that presents with characteristic lump in neck, tightness of throat, hoarseness of voice, dysphagia, and dyspnea. Prevalence of *Galaganda* is 6.8% in Sri Lanka. Ayurveda therapeutic approaches are practiced for treating *Galaganda* for decades by qualified medical officers. However, the efficacy has not been scientifically evaluated. The present study aimed to evaluate the efficacy of the Ayurveda therapeutic approaches for *Galaganda*. An observational single case study was done at outpatient level for two months of treatment followed by one month follow-up. A 56-year-old female attending the outpatient department at the Rural Ayurveda hospital - Kesbewa, Sri Lanka complaining of aforementioned typical clinical features and disturbed sleep with vertigo was diagnosed to be afflicted with *Galaganda* or multinodular colloid goiter. On-examination revealed that enlargement of the right side of the gland with compression symptoms and tracheal deviation. Cervical lymphadenopathy and Pemberton sign were absent. In the first two weeks, *Pippalimulamabhaya Kashaya, Avipattikara Churna* and *Devadara-Viyali Inguru Adi Pattuwa* were applied aiming *Amapachana* and *Agnideepana* with reducing localized swelling. In the next two weeks, *Daruparpatadi Kashaya, Kanchanara Guggulu* and *Nirgundisaptaparni Adi Pattuwa* were prescribed followed by *Theekshna Nasya* for the last five days of treatment aimed at hormone balancing, anti-inflammatory, *Kapha-Vata Shamaka* and *Medohara* actions. At the end of each two weeks, a five-day resting period and after the completion of treatment, one month follow-up was done. Alteration of blood pressure after *Nasya* and itching of the treatment site were expected as adverse effects but no such findings were observed. The upper, middle, and lower margins of the nodule (around the neck) and horizontal diameter were measured at baseline (31.5, 36.0, 36.0 and 9.0 cm) and after (29.5, 32.8, 33.5 and 8.5 cm) the observational period. The thyroid stimulating hormone (TSH) levels were 5.878 mIU/mL at baseline and 0.698 mIU/mL after the treatment. At the end, a significant reduction of clinical features was observed. Therefore, the study concluded that the treatment protocol is effective in the management of *Galaganda* without any apparent adverse effects.

Keywords: *Galaganda,* Goiter, *Kashaya, Nasya*, *Pattuwa*

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Abstract ID - 144

Investigation of the effect of Siddhalepa Natural Asamodagam Spirit on digestive disorders – A survey

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Trachyspermum roxburghianum, commonly known as *Ajwain* or Bishops's weed, is believed to have carminative and digestive properties, often used to alleviate frequent digestive disorders. Additionally, *Ajwain* is thought to possess antimicrobial and anti-inflammatory properties, making it a remedy for respiratory conditions as well as an aid for menstrual discomfort. Siddhalepa Natural Asamodagam Spirit (SNAS) is a 100% natural distillate of Ajwain seeds and is proven effective against *Ajirna, Gulma, Aruchi, Adhmana, Hikka, Chardi* and *Krimi roga*in Ayurveda. This study was done as a controlled survey on 100 randomly recruited participants via a self-administered questionnaire. The participants were aged between 20 and 57 years, with 52% female and 48% male participation. The severity of digestive symptoms within 4 weeks from intervention and the percentage reduction of each symptom upon consumption of SNAS were analyzed. The study revealed stomachache as the most common symptom, followed by bloating, indigestion, loss of appetite and stomach acidity. 25% presented complaints of mild pains whereas 41% complained of severe stomachaches at recruitment for the study. Treatment with SNAS completely eradicating stomachache, irrespective of severity. 44% of the participants had mild to severe indigestion and upon consumption of SNAS, 45% reported absence of any pain while 4% had reduced pains. Reduction in bloating was observed; 45% (mild) and 18% (severe) symptoms were significantly alleviated as measured based on the absence of bloating. 33% and 15% of the participants presented with mild and severe loss of appetite experienced completely improved appetite (48%). Participants with mild to severe stomach acidity (49%) showed no acidity (41%) and mild acidity (3%) post-consumption. SNAS has shown efficacy in inhibiting worm infections with the reduction of mild pains (27%) and severe pains (7%), to absence of any pain. The survey revealed that Siddhalepa Natural Asamodagam Spirit is effective in alleviating common digestive disorders.

Keywords: Anti-bacterial, Anti-inflammatory, Bloating**,** Siddhalepa Natural Asamodagam Spirit

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Abstract ID -150

Anthropometric indices effect on diabetes & pre-diabetes of polycystic ovarian syndrome women treated at Teaching Hospital Jaffna

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Polycystic Ovarian Syndrome (PCOS) is a metabolic disorder caused by hormonal imbalance. Investigating the prevalence of diabetes and the effects of anthropometric indices on the development of diabetes is vital for the effective management, of women affected with PCOS. Descriptive cross-sectional study with convenient sampling method was used to recruit 125 women who were diagnosed with PCOS based on the Rotterdam criteria when they visited Obstetrics and Gynaecology Clinic for the first time. Data for fasting plasma glucose (FPG) level were gathered; weight, height, waist, and hip circumference were measured based on the World Health Organization (WHO) STEPS protocol 52. Ethical approval was obtained from the Ethical Review Committee, Faculty of Medicine, University of Jaffna. Descriptive analysis and chi square test were performed to with SPSS version 25 to analyze the data. The mean FPG of the women was 5.01 (±1.26) mmol/l. Prevalence of diabetes and prediabetes were 3.2% and 19.2%, respectively. The mean BMI and waist-hip ratio (WHR) of PCOS women were 27.8 (±5.7) kg/m^2 and 0.9 (±0.1). Among the prediabetics, 8.0% were obese (≥27.5 kg/m^2), and 4.8% were overweight (23.0–27.5 kg/m^2) and among the diabetics, 2.4% were obese and none were overweight. The mean BMI of diabetics and prediabetics were 29.5 (±4.7) and 26.2 (±6.0) kg/m^2. The mean WHR of diabetics and pre-diabetics were 0.9 (±0.6) and 0.9 (±0.1) respectively. Elevated WHR were observed in 2.4% and 9.6% of diabetics and pre-diabetics respectively. No significant relationships were observed between FPG and BMI, WHR. Even though there has been no significant relationship between the anthropometric indices and FPG of PCOS, the higher anthropometric measures of diabetes / prediabetes, suggested increased risk of women suffering from PCOS becoming diabetic / prediabetic. Furthermore, significant prevalence of prediabetes among women with PCOS, emphasized the importance of targeted prevention of developing diabetes.

Keywords: Anthropometric indices, Diabetes, Polycystic ovarian syndrome, Prediabetes

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Abstract ID -185

Ayurvedic management of spastic hemiplegic cerebral palsy due to perinatal insult - A case study

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Spastic hemiplegia is a cerebral palsy (CP) caused by oxygen deprivation at birth, often due to medical negligence, resulting in involuntary spasms and rigidity in the limbs of one side. A 2-year-old girl with a pre-diagnosed spastic hemiplegic CP (R/S) due to perinatal insult was admitted to NATH with weakness in her lower and upper limbs, difficulty walking without support, and inadequate R/S grasp over the past a 1.5-years. Her Gross Motor Function Classification System level was II, commonly diagnosed as *Drudatha* purvaka pakshagatha (*Ardangagatha*). Of the many types and subtypes of CP, none has any known "cure." Therefore, appropriate care is needed. Ayurveda has a distinct clinical specialty called *Kaumārabhṛtya*, which focuses on child healthcare. We have developed an Ayurvedic therapy protocol to enhance the condition of CP patients. In this case study, the patient was treated with *Panchakarma* therapy and selected Ayurvedic oral medicines to improve the clinical neurological problems. The effectiveness of *Tridosha Shamana Chikithsa*, including *Nidanaparivarjana*, *Anthahparimarjana* (*Shodhana*, *Shamana*, and *Tharpana*) and *Bahiparimarjana* treatments for 7 weeks was analyzed. The same treatments were repeated after a 2-month interval. Data was gathered from electronic databases, periodicals, and Ayurvedic *Samhithas*. Anthropometric measurements, developmental milestones, modified Ashworth scale, reflex scale, MRI, spinal M, and quality of life based on a questionnaire were assessed after two rounds of treatment. The patient showed satisfactory improvement; walking without support (GMFCS Level I) including independent mobility, improved hand grasps, and adequate trunk control to play with toys and draw and reduced spasticity and stiffness in the right limb. Disruption of *Vata* may cause delayed development of gross and fine motor function. *Pakshaghata* is influenced by ingredients with *Srotas Shodhana Vata Shamaka*, *Vata Anulomana*, *Snayu Uththejaka*, and *Tarpana* properties that improve neuroplasticity. *Abhyanga* and *Swedana* causes *Dosha Gati* from *Shakha* to *Koshtha*, removing vitiated *Dosha* through *Basti*. Therefore, Ayurvedic herbs and *Panchakarma* can effectively manage spastic hemiplegic CP and enhance the quality of life. Clinical trials with more patients are needed to confirm the effectiveness.

Keywords: Ayurvedic management, *Drudatha purvaka pakshagatha*, Perinatal insult, Spastic hemiplegic cerebral palsy, Standardized parameters

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Abstract ID -189

Analysis of *in vitro* hypoglycemic activity of *Mangifera zeylanica* leaves

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Mangifera zeylanica, often known as "*Etamba*" in Sinhala, is an endemic mango variety in Sri Lanka that belongs to the *Anacardiaceae* family. Studies have shown that *M. zeylanica* stem bark has anti-inflammatory, antioxidant, and anticancer effects. *M. zeylanica* leaf is used in Ayurvedic medicinal practice because of its anticancer and antibacterial properties. This study aimed to investigate the *in vitro* hypoglycemic activity of *M. zeylanica* leaves as a natural diabetic treatment. Fresh *M. zeylanica* leaves were obtained from the Gampaha area and air dried to reach a constant weight. The dried leaves were crushed and extracted into water and methanol separately. The methanol extract was rotary evaporated, while the aqueous extract was freeze-dried to obtain the solid crude extract. Both methanolic and aqueous extracts were tested for *in vitro* hypoglycemic efficacy using α-amylase inhibition assay. Acarbose was used as the positive control. The IC_{50} of the test samples was determined to identify the concentration of test samples that inhibits 50% of alpha-amylase enzyme activity and all results were analyzed by using GraphPad Prism 10.2.0 software. Methanolic extract and aqueous extract exhibited IC_{50} values of 0.82 gL^{-1} and 1.74 gL^{-1}, respectively, while IC_{50} value of acarbose was 0.12 gL^{-1}. The results showed that methanolic extract exhibited significantly higher activity than the aqueous extract. Therefore, *M. zeylanica* leaves may possess anti-diabetic potential and combination of these findings could be used to create a natural, safe, and novel dosage form to address the limitations and adverse effects of conventional antidiabetics.

Keywords: α-Amylase, *Etamba*, Hypoglycemic, *Mangifera zeylanica*

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Abstract ID -233

Effect of *Citrus* aurantifolia (Key lime) extract on postprandial glycemic response of oral glucose solution in healthy individuals

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The prevalence of type 2 diabetes has surged globally, urging researchers to explore natural remedies with potential hypoglycemic effects. *Citrus aurantifolia*, commonly known as Key lime or *Dehi*, exhibits various ayurvedic and pharmacological properties, including antidiabetic potential. This study aimed to investigate the effect of *Citrus aurantifolia* extract on postprandial glycemic response to oral glucose solution in healthy individuals. A randomized clinical trial (KIU/ERC/23/190) was conducted on a cohort of healthy male participants (n=74). Participants were randomly grouped into two groups and were assigned to receive a glucose solution (75g glucose in water) after 8-10 hours of fasting, followed by either *Citrus aurantifolia* extract (Test group) or no *Citrus aurantifolia* extract (Control group). Postprandial blood glucose levels were monitored at fasting, at 30 minutes and at regular time intervals over a period of one hour. The primary outcome measure was the change in postprandial glycemic response compared to baseline fasting glucose level in mmol/L. The results of this study revealed a significant attenuation of postprandial glycemic response in individuals administered with *Citrus aurantifolia* extract compared to the control group with mean values of 3.17 mmol/L in the test group and 6.09 mmol/L in the control group at a 30-minute interval. The extract exhibited a significant reduction (47.9%) of blood glucose levels in the test group compared to the control group after 30 minutes ($p<0.05$). These findings suggest that *Citrus aurantifolia* extract possesses potential antihyperglycemic properties, which may be attributed to its bioactive compounds such as flavonoids and polyphenols as reported in the literature. Further investigation is warranted to explore its therapeutic potential in managing postprandial glycemic fluctuations in diabetic patients. Incorporating *Citrus aurantifolia* extract as a dietary supplement may offer cost-effective home-based remedy in glycemic control and diabetes management, contributing to improved health outcomes and quality of life.

Keywords: *Citrus aurantifolia*, Lime, Postprandial glycemic response, Type 2 diabetes

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Abstract ID -242

Influence of day cycle and lunar phase gravitational effects on birth deliveries in Trincomalee, Sri Lanka

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In many societies around the world, there is a belief that the frequency of births is associated with the phases of the moon and especially the day cycle. Labor pain is controlled by the autonomic nervous system and various hormones. It is expected to be influenced by the weather and environmental changes as well. The purpose of this study was to correlate the relationship of the phases of the new and full moon, time phases of day and night which trigger onset of labor and spontaneous rupture of membranes on the frequency of child delivery. This study is a retrospective observational study. Birth registers of Trincomalee General hospital, Kinniya base hospital and Kantale base hospital in the Trincomalee district have been reviewed from January 2021 to December 2021. In total, 4360 normal births were considered. The highest percentages (66.0%) of births occurred during morning and midday hours, with the peaks at 8 am. More babies were born in the morning than at night. Variation in the births with different phases of the lunar cycle were new moon 9.1%, waxing crescent 12.2%, first quarter 12.3%, waxing gibbous 13.1%, waning gibbous 12.5%, third quarter 12.2%, waning crescent 11.8%, and the highest peak 14.5% at full moon. During the lunar phase, the full moon exerts its optimum pressure on fluid masses on earth through its gravitational pull. Accordingly, it affects the amniotic fluid leading to uterine distension and onset of labor. Embryo and the fetus develop in water as the medium. Therefore, it may be reasonable to propose an association between the full moon and childbirth.

Key words: Amniotic fluid, Fetus, Gravitation, Labor, Lunar phase

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Abstract ID -246

Diabetes mellitus status and hepatic fibrosis & steatosis in metabolic-dysfunction associated fatty liver disease

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Diabetes mellitus (DM) is a comorbidity commonly presenting with metabolic-dysfunction-associated fatty liver disease (MAFLD). Hepatic fibrosis should be treated to prevent disease progression into cirrhosis. A preliminary study indicated a correlation between glycemic status and hepatic fibrosis in MAFLD patients. Hence, this study aimed to determine the prevalence of DM among MAFLD patients and to evaluate the association between DM status and hepatic steatosis and fibrosis. A cross-sectional study with MAFLD patients (n=124) referred to the Gastroenterology Clinic of North Colombo Teaching Hospital, Ragama, Sri Lanka was conducted. Hepatic fibrosis (LSM-kPa) and hepatic steatosis (CAP-dB/m) were determined by FibroScan. Liver profile, and glycemic indices (fasting blood sugar and HbA1c) were assessed. Independent t test was performed to compare the hepatic fibrosis & hepatic steatosis scores and liver profile parameters of DM and non-DM patients. Patients were categorized based on hepatic fibrosis (LSM cut-off value 8kPa). Logistic regression analysis was performed to evaluate the association between DM status and hepatic steatosis and fibrosis. A total of 70 MAFLD patients (56.4%) were diagnosed with DM. There was a progressive increase in the prevalence of DM with increasing quartiles (Q) of hepatic steatosis & hepatic fibrosis scores. The mean values of hepatic fibrosis, hepatic steatosis, aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase, gamma-glutamyl transferase, total protein, albumin and total bilirubin levels were 8.78±2.85 kPa, 303.17±35.3 dB/m, 60.43±32.05 u/L, 69.3±35.13 u/L, 91.3±29.6 u/L, 56.05±26.09 u/L, 7.51±0.53 g/dL, 4.6±0.6 g/dL and 0.3±0.1 mg/dL. MAFLD patients with DM had significantly higher hepatic fibrosis (P=0.001). The hepatic steatosis and liver profile parameters were not significant among the two groups. DM is significantly associated with high prevalence of fibrosis (LSM >8kPa) (OR = 0.41, 95% CI, 0.20–0.85, p=0.018). The MAFLD patients with DM had higher scores of fibrosis compared to non-DM patients. Management of DM is crucial in MAFLD patients to prevent hepatic fibrosis.

Keywords: Diabetes mellitus, Hepatic fibrosis, Hepatic steatosis, Metabolic-associated fatty liver disease

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Abstract ID - 260

Comparative study on *Pitha* diseases with hereditary metabolic disorders

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Siddha medicine is an ancient traditional medical system. In the modern world, lack of scientific evidence leads to difficulty in standardizing the system. According to *Siddhars* the basic physiological functions of the body like movement, heat production and regulation, and electrolyte balance are maintained and mediated by three humours called *'Mukkutram'.* They are *Vatha, Pitha* and *Kapha* representing the creation, protection and destruction which can be correlated as anabolism, metabolism, and catabolism. *Pitha* means temperature of the body and represents metabolic activities of the body like absorption, assimilation, and thermogenesis. There are 42 types of *Pitha* diseases, in which some of the diseases affected the mental status. Hereditary metabolic disorders are a group of diseases with a low prevalence that are frequently underdetected or misdiagnosed. Hereditary metabolic disorders are generally caused by a total or partial incapacity to produce an intracellular component of a metabolic pathway, which can lead to a dysfunction of the intracellular synthesis or catabolism. Inherited metabolic disorders encompass a diverse range of conditions wherein clinical manifestations arise from the accumulation of toxic substances or impaired synthesis of essential compounds, thereby disrupting normal cellular function. This study shows the diagnosis and management of different types of *Pitha* disease, which is interrelated with hereditary metabolic disorders. It employs appropriate terminology to describe signs, symptoms, and specific characteristics of each ailment and correlate them with modern medical concepts where applicable. Additionally, specific medicines for *Pitha* diseases, which are compared with hereditary metabolic disorders were discussed in this study according to *Siddha* classical texts. This study will be helpful for future clinical studies on *Pitha* diseases for proper diagnosis and management.

Keywords: Hereditary metabolic disorder, Metabolism, *Pitha* disease, Siddha medicine

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Abstract ID -269

Prevalence of obesity at the National Ayurvedic Hospital

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Today obesity has become a health threat not only in Sri Lanka but also in other countries in the world. The overweight and obese population is increasing at an alarming rate in the developed and developing countries. The World Health Organization (WHO) has estimated that in 2016, over 1.9 billion adults, 18 years and older were overweight. Overall, about 13% of the world's adult population is obese. Being overweight and obese were identified as the fifth leading risk for global deaths, amounting to at least 2.8 million deaths each year. The aim of the present study was to determine the prevalence of overweight and obesity and the socio-demographic correlation among adults who visited the above-mentioned hospitals. This study was carried out in the outpatient unit at the National Ayurvedic Hospital, Borella. Convinced sampling technique has been used. The total number of participants in this study was 250. The ages of the study participants ranged from 22 to 79 years, with a mean age of 48.7 $\pm$ 12.5 years. Most of the sample was from the age group between 51-60 presenting 32.5%. Among them, 40.4% were overweight and 26% were obese. There is a significant ($P<0.05$) relationship between the body mass index (BMI) and the age group.

Key words: BMI, Obesity, Prevalence

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Abstract ID -284

In silico study on inhibition of Sodium-glucose cotransporter 1 (SGLT1) by abundant phytochemicals present in Sri Lankan spices

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The Sodium-glucose cotransporter 1 (SGLT1) plays a crucial role in the absorption of glucose in the small intestine. Inhibiting or down-regulating SGLT1 activity has emerged as a potential therapeutic strategy for diabetes. Several researchers have found synthetic inhibitors against these receptors to control the hyperglycaemic condition, but those inhibitors also have their advantages and disadvantages. Sri Lanka is a South Asian country, and spices are an essential ingredient in Sri Lankan cuisine. This study aims to discover potential inhibitors against SGLT1 using natural phytochemicals present in Sri Lankan spices that can be directly consumed with the diet, such as *Curcuma longa* (Turmeric), *Piper nigrum* (Black Pepper), *Allium sativum* (Garlic), *Trigonella foenum* (Fenugreek), and *Coriandrum sativum* (Coriander). A literature survey was carried out to obtain abundant phytochemicals present in those spices. AutoDock 4.2 and Discovery Studio visualizer were used to perform protein-ligand docking simulations to obtain binding energies between SGLT1 and phytochemicals. Molinspiration cheminformatics and pkCSM web servers were used to predict the physicochemical, bioactivity, and ADMET (absorption, distribution, metabolism, excretion, and toxicity) properties of those phytochemicals. LX2761, the control inhibitor, displayed a binding energy of -12.72 kcal/mol, indicating a strong affinity because it is specifically designed for the binding pocket of the SGLT1. Phytosterols such as beta-sitosterol, campesterol, and stigmasterol from fenugreek, coriander, and turmeric displayed remarkably low binding energies of -12.37 kcal/mol, -12.31 kcal/mol, and -12.06 kcal/mol, suggesting potential binding affinities comparable to LX2761. Additionally, physicochemical and ADMET predictions suggest that those phytochemicals are biologically safe and have potential therapeutic properties as well. Therefore, computational chemistry methods coupled with experimental validation can provide valuable insights into the development of novel anti-diabetic therapeutics based on commonly used spices.

Keywords: Binding energy, Physicochemical, and ADMET predictions, Phytochemicals, SGLT1, Sri Lankan spices

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Traditional practices on food, nutrition, and food safety

Abstract ID - 12

A study on contribution of paddy cultivation to food safety and nutrition in the medieval era

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In the history of Sri Lanka, the period from 1232 to 1505 AD is considered as the medieval era. The speciality of this era is the modernization of farming activities in the way that suits the climate and geographical factors. On such a basis, the research problem of this study was how the paddy cultivation changed from dry zone to south-western areas. The objective of this research was to inquire how to substitute medieval era cultivated paddy varieties as a solution for current nutrition deficiencies and address food security problems in Sri Lanka. In this study, primary and secondary literacy sources and inscriptions from the medieval period were studied as the research methodology. Likewise, literary sources and archaeological sources were compared and analyzed in this study. The data obtained were presented through descriptive methods. Results revealed that even though the yield is low in traditional paddy varieties, they are resilient – against climate change. Further, traditional paddy varieties contain higher nutritional properties compared to current hybrid paddy varieties. For example, it has been revealed through research that local paddy varieties like *Kuruluthuda*, *Girahota* and *hodarawalu* are more nutritious than current hybrid paddy varieties like B_G and H_4. In addition to that, it was identified that the human body's immunity develops through these local paddy varieties. For example, it has been revealed that the immunity of the human body is strengthened through the above paddy varieties in a way as mentioned in the ancient local medical books such as *Yogarnawaya* and *Besajjamanjusa.* Although it is difficult to reveal numerical data in historical research the present research important to gain some understanding about the health condition and nutrition of people the medieval era. The conclusion of this study is, that the findings of this research may be useful in future policy and decision making of the government.

Keywords: Food safety, Medieval era, Nutrition, Paddy cultivation

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Abstract ID - 18

Critical analysis on contamination and purification methods of water with reference to Ayurveda and modern sciences: A review

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Worldwide, millions of people are lacking access to safe drinking water, sanitation, and hygiene (WASH). Water is a major constituent of food and nutrition; therefore, safe, and clean water is important for food safety. Water contamination has been a burden to the community and nature. Some purification methods in modern science have mainly been designed to consume energy. The objectives of this research were to critically analyze contamination and purification methods according to Ayurveda and modern sciences. The Ayurveda literature was gathered from the *Bruhatrayi*, *Laghutrayi*, *Kashyapa* and *Bhela Samhita* while the data from modern sciences were gathered from approximately 24 journal articles using Google Scholar, PubMed and Science Direct databases. *Bhavaprakasha* mentions water as the divine nectar, and is a nutritious, cooling substance. According to *Ashtanga Samgraha* and *Ashtanga Hrdaya Samhita,* water may be contaminated with urine, excreta, decomposed dead bodies, weeds, algae and rootless plants. Modern sciences describe sedimentary rocks, soils, substances like magnesium, calcium, chloride, faecal matter, urine, dead bodies, industrial and agricultural waste products, and improper disposal of household chemicals as contaminants. Ayurveda mentions boiling water or exposing water to sunrays, heated metals, stones or sand, filtering water through a thick cloth, adding fragrance with camphor and flowers, adding gold, pearls, lotus roots, cat's eye to make the water clear as the purification methods, while modern sciences mention boiling, filtration, chlorination, coagulation, acoustic nanotube technology, LifeStraw, photocatalytic purification, and microfiltration. According to gathered data, it is obvious that modern methods have been developed based on some ancient methods and this traditional knowledge can be applied to purify water using cost-effective and eco-friendly methods to provide safe, affordable drinking water to the community.

Keywords: Contamination of water, Purification, Sanitation

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Abstract ID - 23

A review on *Elu Peekudu* Basna in Sri Lankan traditional medicine

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Sri Lanka is a country with old civilization and *Ayurveda* medicine has been widely practiced throughout the ages with Sri Lankan Traditional medicine more than 4,000 years. *Ayurveda* and traditional medicine have survived for centuries for effectiveness and time-tested potent medical practices. The objective was to find out the therapeutic value of *Elu Peekudu Basna* in Sri Lankan traditional medicine. According to Sri Lankan traditional medicine, it was an effective medicinal preparation as well as a dietary supplement for many diseases due to its actions like *Vrunhana* (Nourising), *Shakthiwardhaka* (Energizing), *Deepana* (Appetizing and enhancing digestive power) and *Ojo Wardhaka* (Immunity enhancing). It has also been mentioned in *Basna Kalpana* in *Ayurveda Aushadha Sangraha*. It was reviewed that *Kapha Vata Shamaka* (Pacify *Kapha-Vata Dosha*) and *Raktha Shodhaka* (Purify blood) formula due to its pharmacodynamic properties like *Madura* (Sweet), *Katu* (Pungent), *Thikta* (Bitter) and *Kashaya* (Astringent) *Rasa*, *Laghu* (Light), *Snigdha* (unctuous) *Guna, Ruksha* (Dry) accompanied by *Ushna* (Hot) and *Seetha* (Cold) *Veerya* and *Madura* (Sweet), *Katu* (Pungent) *Vipaka*. As per modern medicine, it has contained pharmacological actions like immunity enhancing, appetizing, anti-inflammatory, anti-microbial, anti-fungal, increasing digestive power, analgesic, anti-flatulent, cardio protective and antioxidant actions. Hence, it can be concluded for use many diseases like *Rakthaheenatha* (Anaemia), *Grahani* (Digestive disorders), and *Mandam* (Malnutrition and emaciating disorders).

Keywords: Ayurveda Aushadha Sangrahaya, Elu Peekudu Basna, Sri Lankan traditional medicine

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Abstract ID - 25

Development of boiled palmyra (*Borassus flabellifer* L.) tuber flour incorporated cookies

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Cookies are a popular food item worldwide. Wheat flour is the most common flour used in snacks due to its high gluten content, which gives baked products a unique structure and chewy texture. The use of wheat flour is limited due to gluten sensitivity, celiac disease, and other non-communicable diseases. It is beneficial to evaluate the possibility of replacing wheat flour with locally available healthy flour alternatives. Boiled Palmyra (*Borassus flabellifer* L.) tuber flour (BPTF) is a good alternative flour because of its functional and proximate characteristics, low glycemic index, and easy availability in some regions of Sri Lanka. This study attempted to develop BPTF-incorporated cookies by optimizing the flour ratio. Initially, the BPTF was debittered by soaking flour for predetermined durations of 1,6,12,18, and 24 hours. The best soaking time for optimal debittering was found to be 18 hours. After a set of pre-trials, four different flour ratios of BPTF: wheat flour (0:100, 30:70, 40:60, and 50:50) were further studied for suitability for cookie preparation. A standard sensory evaluation using a trained panel revealed that the cookies formulated with a 40:60 flour ratio received the highest overall acceptability. The proximate properties of the cookies formulated with the selected flour ratio are as follows; energy: 476.5 kcal, carbohydrates: 48.80 g, sugar: 5.92 g, fat: 28.23 g, Protein: 7.81 g, fiber: 9.81 g, ash: 1.4 g, and moisture content: 1.94 g (dry basis) per 100 g. The functional properties of cookies were found to be as follows; water absorption capacity: 17.67 %, swelling capacity: 0.58 g g^{-1}, bulk density: 0.7 g cm^{-3}(n=3). The other physical properties of the cookie were 4.60 cm diameter, 3.56 mm thickness, and 0.07 spread ratio (n=3). A consumer preference survey showed a positive response for 40 % of BPTF incorporated cookies. It is concluded that BPTF cookies have greater potential as a health snack, which can be commercialized.

Keywords: Cookies, Debittering, Functional properties, Palmyra tuber flour, Proximate properties

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Abstract ID - 33

Exploring traditional practices on food, nutrition, and food safety measures in Sri Lankan culture: A multifaceted investigation

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Globally, the multi-cultural society is rich with traditional practices related to food preparation, consumption, nutrition, and food safety. According to beliefs, practices and teachings within Sri Lankan society, food, nutrition, and existing food safety traditional practices play a vital role. This study provides an in-depth exploration about the Sri Lankan multi-cultural traditional practices linked with food preparation, consumption, nutrition, and food safety, with recipes passed down through generations. This paper focused on freshness, enhancement of taste, nutritional value of dishes and crucial role in ensuring food safety. Sri Lankan culture places a strong emphasis on food hygiene and cleanliness. The purpose of this paper was to preserve and promote these practices that Sri Lankans continue to uphold their cultural identity while safeguarding the health and well-being of future generations. The study adopted a qualitative approach, and a conceptual framework has been developed to address the research questions based on a literature review. The conceptual framework included cultural context to examine how traditional beliefs, values, rituals, and social norms influence food choices, dietary habits, and perceptions of food safety within a community or society. Secondly, nutritional value of macronutrients and micronutrients of traditional diets and their potential role in promoting health, preventing malnutrition, and addressing specific nutritional deficiencies were explored. Traditional food handling practices, storage conditions, sanitation methods, and microbial safety considerations to prevent foodborne illnesses and ensure the safety of traditional foods were also examined. The study was based on 20 individuals' non-probability samples from three main ethnic communities, namely, Sinhala, Muslim and Tamil and it presents results of factor analytics and correlational and thematic analyses. The research findings provide an overview of these practices, highlighting their significance in promoting both traditional practices and food safety within Sri Lankan three main ethnic communities. Based on the qualitative data gathered from the study, participants across the Sinhala, Muslim, and Tamil communities in Sri Lanka consistently emphasized the importance of traditional food practices in promoting health and preventing malnutrition. They shared insights into specific traditional recipes, cooking methods, and food preservation techniques that have been passed down through generations, highlighting how these practices contribute to the freshness, taste enhancement, and nutritional value of dishes. Additionally, participants expressed a strong commitment to food hygiene and safety practices, underscoring their role in safeguarding community health and well-being.

Keywords: customs, food hygiene, food safety, nutrition, traditional practices

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Abstract ID - 52

Traditional roots of food preservation: A review of *Asamodagam* as a natural antifungal agent in mitigating food spoilage

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Fungi possess remarkable resilience, enabling them to withstand control measures implemented by the food industry. In addition to practical techniques such as heating, refrigerating, and using chemical preservatives to mitigate fungal spoilage, traditional food preservation methods also yield beneficial effects of natural antifungals while minimizing the hazardous outcomes. Aa an herb with a significant background in both culinary and traditional medicine, *Asamodagam* (*Trachyspermum involucratum*) offers a potentially advantageous substitute. This comprehensive review investigates the antifungal properties of *Asamodagam*, with an emphasizing the bioactive compounds present in the extracts derived from this medicinal plant. Phenolic acids, flavonoids, and essential oils have been identified as the principal antifungal agents in the plant, with thymol and carvacrol being of particular significance. These compounds demonstrate significant efficacy against various species of food spoilage fungi, such as *Aspergillus, Penicillium,* and *Fusarium* and notably, *Candida albicans,* suggesting its potential as a dual-purpose agent for spoilage prevention and health enhancement. The investigation underscores the potential of *Asamodagam* as a sustainable and health-conscious substitute for conventional preservatives in food preservation by comparing their antifungal efficacy. This emphasizes the importance of integrating contemporary scientific investigation alongside conventional botanical wisdom to develop innovative solutions for obstacles related to food safety. In conclusion, it can be stated that *Asamodagam* is a promising natural preservative in combating fungal food deterioration, making it a valuable addition to the arsenal. This inquiry not only tackles the pressing requirement for alternative methods of preservation but also establishes the groundwork for future studies on the implementation of traditional plants in the field of food science and safety.

Keywords: Antifungal agents, *Asamodagam,* Food spoilage, Food safety, Natural preservatives

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Abstract ID - 66

Reviving traditional food safety measures: A review of *Asamodagam* plant extracts against foodborne pathogens

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Foodborne diseases represent a persistent challenge to global health, affecting millions of individuals annually and posing a significant burden on public health systems worldwide. Despite advancements in food safety protocols and technologies, the incidence of diseases caused by pathogens such as bacteria, viruses, and parasites remain high. Limitations of conventional methods and drawbacks in chemical preservatives and antibiotics have drawn consumer preference for natural products. Traditional approaches, such as the utilization of plant extracts with antibacterial characteristics, seem to be an alternative possibility in this search. The *Asamodagam* plant, known scientifically as *Trachyspermum involucratum*, has been utilized in traditional medicine for centuries, predominantly in South Asian countries, for its health-promoting properties. This review explores the potential of *Asamodagam* extracts as a natural solution to combat foodborne pathogens, bridging traditional knowledge with modern scientific research. It focuses on the antimicrobial activities of compounds like thymol and carvacrol in the plant, which inhibit the growth of significant foodborne pathogens, including *Salmonella typhi, Staphylococcus aureus, Bacillus subtilis, Klebsiella pneumoniae*, and *Escherichia coli*. The findings not only validate the historical application of the plant in traditional medicine and food preservation but also make a valuable contribution to the current discussion associated with health-conscious and sustainable approaches to food safety. This review highlights the potential for innovation in the field of food safety through the integration of modern scientific research and traditional herbal knowledge. It encourages additional investigation into the applications of *Asamodagam* and its contribution to the development of natural preservative systems.

Keywords: *Asamodagam,* Foodborne diseases, Food safety, Herbal medicine, Plant extracts

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Abstract ID - 84

A review on the seasonal variation in the consumption of traditional foods

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In Siddha medicine, diet plays a vital role in maintaining health and treating diseases. Siddha medicine recognizes three vital energies within the body known as *Vatham*, *Pitham*, and *Kapham*. These energies, which control the body and the environment, are known as the macrocosm (*Andam*) and the microcosm (*Pindam*), respectively. They emphasize the interconnection between environmental changes (principle of macrocosm and microcosm) and human well-being (derangement of trihumors). Foods are typically selected and traditionally consumed according to seasonal variations. This review aims to explore the seasonal variation in the consumption of traditional foods. A literature review on seasonal regimens was conducted using five different classical texts of Siddha and 125 journals. There are six seasons mentioned in the Siddha system, such as *karkaalam* (early rainy), *koothirkaalam* (latter rainy), *munpanikaalam* (early winter), *pinpanikaalam* (latter winter), *ilavenilkaalam* (early summer), and *muthuvenilkaalm* (latter summer). As a result, *Vatham* was deranged in the latter summer and early rainy season, *Pitham* was deranged in the early and latter rainy season, and *Kapham* was deranged in the latter winter and early summer season. According to these changes, the diet is traditionally determined and consumed based on taste, potency, and properties. Honey enriched foods, old cereal porridge, and old rice foods were consumed throughout the early and latter rainy seasons, while wheat gruel, blackgram porridge, cow's ghee-added foods, and oily foods were taken in the early and latter winter seasons. Further, vegetables, fruits, samba rice foods, *mor* (spiced buttermilk), and cereal gruel (*koozl*) foods were consumed in the early and latter summer seasons. In this context, understanding the seasonal variation and its impact on the derangement of trihumors is crucial. It indicates the need for a seasonal diet to balance trihumors, protect against diseases caused by seasonal changes, and provide essential nutrients for the immune system through proper nutrition, thereby promoting overall health, and well-being.

Keywords: Seasonal variations, Siddha medicine, Traditional food

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Abstract ID - 85

A review on the traditional food *kurakkan kali* for females at their puberty

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In siddha medicine diet plays a crucial role in health and disease management. Traditional food emphasizes that health and nutrition nourish the body, mind and soul. Puberty is a natural transformative process during which a child's body matures into an adult body, capable of sexual reproduction through the interaction and cooperation of biological, physical and psychological changes. Traditional food *kurakkan kali* is given at the time of puberty and after puberty as it was mainly used in different communities as a food source during puberty. It is a nutritious food which is rich in carbohydrates, proteins, fats, and calcium. This study was aimed to validate the nutritional value of *kurakkan kali* and to suggest the essential needs of it at puberty. Detailed information about *kurakkan kali* has been reviewed and gathered by using different texts of Siddha such as, "*Padharthaguna sinthamani* in 1932", "*kunapadam mooligai vahuppu in 1936*", "*Udalnala vaazhvum mooligai marutthuwamum unavu vakaikalum* in 1996", "*Mooligai seyal thohuppu* in 2002", and various journals, based on the keywords *kurakkan kali* and puberty. Mainly carbohydrates, proteins, calcium, iron and zinc are the most essential nutrients required during puberty. A 100 g of *Kurakkan kali* contains 72 g of carbohydrate, 7.3 g of proteins, 1.3 g of fat and minerals. Hence *kurakkan kali,* made by addition of *kurakkan* flour, small amount of jaggery and milk and was given during puberty as a tonic to females during puberty, to strengthen their body and to overcome the complications related to changes in their body at the time of puberty and after puberty. The *kurakkan kali* was mainly consumed by the people in the rural areas of Sri Lanka, hence it helps to prevent excess bleeding, and it strengthens the bones and reduces the body pain.

Keywords: *Kurakkan kali*, Puberty, Traditional foods

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Abstract ID - 92

Development of sprouted sorghum (*Sorghum bicolor*) flour incorporated biscuits

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Biscuits stand out as the leading category of snack worldwide due to the taste, ease of handling and long shelf-life though it is regarded unhealthy. Sorghum (*Sorghum bicolor*) is the fifth major cereal crop in terms of worldwide production and bears a range of health benefits. Sprouting is a cost-effective approach for enhancing the nutritional content and functional properties of grains. This study attempted at developing sprouted sorghum flour incorporated biscuits. The biscuits were prepared by adding different proportions (0, 30, 40 & 50 %) of sprouted sorghum flour (SSF) with wheat flour. In terms of sensory attributes, the biscuit made with 30 % sprouted sorghum flour biscuit (SSFIB) showed best acceptance; in terms of color (6.46±0.29), appearance (6.69±0.26), texture (6.53±0.46), aroma (6.46±0.29), taste (7.30±0.32), mouthfeel (7.07±0.44) and overall acceptability (7.23±0.39). The proximate composition of 30 % SSF incorporated biscuits was found to contain approximately 357 kcal energy, 66 g carbohydrate, 5 g fat, 13 g protein, 15 g fiber, 2 g ash, 13 g sugar, 0.73 g salt per 100 g and 2.49 % (wb) moisture. The functional properties of 30% SSF incorporated biscuits were as follows; swelling capacity 7.3±0.04 ml, water absorption capacity 2.63±0.03 g/g, bulk density 0.36±0.02 g/cm^3, true density 0.66±0.02 g/cm^3 and spread ratio 1.6±0.20. The market survey indicated strong consumer acceptance with the majority favoring the taste, aroma, and appearance, resulting in a positive overall preference. Therefore, this study highlights that 30 % SSF incorporated biscuits offer a nutritious and well-received alternative in the market while promoting the use of sorghum in bakery products.

Keywords: Biscuit, Functional properties, Proximate composition, Sprouted sorghum flour

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Abstract ID - 93

Traditional practices on food in Sri Lanka: A literature study

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Food has a remarkable ability to bring people together, transcending language and cultural barriers. Traditional practices surrounding food encompass not only culinary traditions but also considerations of food safety and nutritional value. Many traditional diets are based on whole, locally sourced ingredients, emphasizing seasonal produce, whole grains, lean proteins, and healthy fats and have been linked to lower rates of non-communicable diseases. This literature study mostly considers Sri Lankan food culture with traditional practices. *Kuweni* served rice preparations and sweets to Prince Vijaya recorded as the first food-related history in *Mahawamsa*. *Veddas*, early Homo sapiens in Sri Lanka, hunt wild animals and fish and prepare them by direct roasting, pit cooking, hot rock cooking, and smoking. Excess hunt is preserved by smoking, drying, preserving honey and storing in underground pits and tree dens etc. In a predominantly agricultural society, food culture and traditions have evolved with the seasonal nature of the crops grown, daily activities, beliefs and food sources. The practice of sharing meals within communities encouraged accountability and oversight. A typical conventional diet consists of carbohydrates, protein, lipids, fiber, vitamins and micronutrients. Rice serves as the main carbohydrate source while grains, pulses, tubers and yams also serve as carbohydrate staples for the main meal. Consumed vegetables and fruits that were locally sourced and in season. Spices like turmeric, ginger, pepper and black pepper have anti-inflammatory, antifungal and antimicrobial qualities and add flavors and aroma to dishes. "*Viruddha Ahara*" is incompatible food combinations that are considered detrimental to health like manioc and ginger, ghee and honey etc. Minimizing food waste and preserving food is also a part of traditional practice.

Keywords: Nutrition, Preservation, Virudda ahara

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Abstract ID - 108

Buddhist teaching on food, nutrition, and food safety for human development: A review

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The contemporary global health crisis, characterized by malnutrition and food safety issues, necessitates a revisit to traditional wisdom. This study explores the relevance of Buddhist teachings, particularly those found in the Vinaya Pitaka, to address these challenges. The primary objective is to understand the Buddha's teaching on food, nutrition, and food safety as prescribed for Buddhist monks. The study also aims to extrapolate these teachings to lay practices, thereby offering insights into sustainable and healthy living. Researcher employs a qualitative methodology, analyzing primary Buddhist sources, relevant scholarly articles and publications. The Buddha's teachings emphasize viewing food as medicine, and consuming only what is necessary for the existence. The Vinaya Pitaka outlines specific dietary rules avoiding meals at night, that causes proper digestive mechanism increasing healthiness, destroying the carcinogen inside the body and avoiding certain types of meat, which can be seen as early food safety measures. Furthermore, the Buddha's emphasis on receiving alms food (most are by walking) encourages a sense of community and sustainability. It is recommended to consume food and water in quantities that collectively occupy one-third of the stomach's capacity, while the remaining third should be reserved for air intake. Daily meditational practices are the best food for the mind, which purify the blood and thoughts, which eventually affect all the functions of the body. When engaged in daily meditations, speech and actions are fully stopped and via mind, the thoughts are also purified refreshing all the systems of the body. Buddhist teachings emphasize mindful and respectful eating practices, such as receiving and consuming food appreciatively, focusing on the bowl, and eating methodically. They discourage behaviors that lead to waste, or disrespect, such as taking extra-large mouthfuls, greed for food, or discarding bowl-rinsing water with grains of rice in inhabited areas. These teachings promote moderation, good practices during consumption of food, and mindful consumption. Implementing these practices found in Buddhist literature could contribute to improved public health, less food wastage and sustainable living.

Keywords: Buddha, Food safety, Nutrition, Traditional practices, Vinaya Pitaka

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Abstract ID - 122

A review on decoding indigenous intuitions of *Vateria copallifera (Hal)*: Rebooting integrated food safety practices

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Sri Lanka has inherited a rich legacy of indigenous foods and cooking methods closely linked to therapeutic and nutritional values. A comprehensive exploration of the literature available on indigenous food could highlight the fact that the incorporation of traditional practices into modern food safety procedures will help to adopt a healthy lifestyle. *Vateria copallifera* (Hal tree) is one of the endemic plants in Sri Lanka and a traditional food that can be replaced by refined flour with time such as *hal pittu, helapa,* and *roti.* This review delves into the conservation of traditional knowledge, indigenous practices, and biodiversity surrounding *V. copallifera,* and its role in safeguarding foods, shedding light on its properties and historical significance on pharmaceuticals, nutraceuticals, agriculture, and medicine. It is evident that *V. copallifera* produces a wide array of natural products with antimicrobial, anti-inflammatory, antioxidant, wound healing, analgesic, and anti-cancer compounds in the various parts of the tree. Isolation of bioactive compounds from the water extract of the bark is reported to contain chemicals such as copalliferol A and B, triterpenes, hexamethylcoruleoellagic acid, pentamethylflavellagic acid, tetramethylellagic acid, chrysophanol, scopoletin, and resveratrol. It is used to treat rheumatic pains, ulcers, diarrhea, and diabetes mellitus in traditional medicine. The resin of bark has been used as a food preservative, natural food coating, and flavoring agent. Fruits that have a unique bitter taste have been used in traditional healthy food preparations after debittering as freshly scraped flour. Anti-inflammatory, anticancer, antibacterial/antiseptic, antioxidant, larvicidal, and sedative activities and other therapeutic properties of extracted natural compounds have been revealed in many reported studies including traditional food preparations with healthy living to reboot modern food safety protocols by integration. This review stresses the importance of traditional food practices of *V. copallifera* to ensure their compatibility with modern food safety standards, to conserve the Hal tree, and to sustain its availability for future generations, as an endangered endemic tree in Sri Lanka.

Keywords: Food safety, Hal, Indigenous practices, Traditional food practices, *Vateria copallifera*

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Abstract ID - 139

Identify the potential of promoting seaweeds as a food tourism product in Sri Lanka

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Seaweeds have been recognized as a highly nutritious and versatile food source with a wide range of health benefits. Sri Lanka, with its long coastline and abundant marine resources, has the potential to develop seaweed-based food products as a unique food tourism product. Specifically, the study seeks to understand the level of awareness of seaweed as a food tourism product among ethnic restaurant consumers and the level of willingness to use seaweed as a food tourism product among food suppliers in Sri Lanka. The study employed in-depth interviews to gather data from 20 interviews. Participants were local and international guests who travel and visit ethnic restaurants in five-star hotels in Sri Lanka sampled through convenience sampling. Customers included cultivators who cultivate seaweeds and substitute cultivators, and staff members who work in ethnic restaurants in five-star hotels in Sri Lanka sampled via snowball sampling. Data has been scrutinized using content analysis as a study-adapted qualitative design. The findings of this study indicate that seaweed may not be a traditional or commonly consumed food item in some regions and factors such as availability, access to seaweed-based dishes, and cultural familiarity may also influence the level of consumption. However, seaweed has a range of benefits, including its nutritional value, sustainability, and potential for use in various industries. Seaweed cultivation in Sri Lanka faces financial challenges, challenges related to government support, regulation, weather and environmental factors, technology, and working conditions. An important finding of this study is that Sri Lankan visitors may be interested in trying seaweed-based dishes, and for that quality, seaweed should be used to provide a novel experience. The study recommends the development of a comprehensive strategy to promote seaweed-based food tourism, including awareness campaigns, capacity building, and regulatory reforms. Introducing seaweed to Sri Lankan cuisine creatively and uniquely is worth considering.

Keywords: Awareness, Promote, Seaweed, Tourism product, Willingness

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Abstract ID - 162

Assessing hyperthyroidism awareness among Sri Lankan undergraduates: Ayurvedic dietary support

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Hyperthyroidism, a prevalent thyroid disorder globally, presents significant health challenges, particularly in developing countries like Sri Lanka. It is imperative for society to be aware of this condition's profound impact on health. Raising awareness about hyperthyroidism among the younger generation is crucial as they represent the future of society. In addition to conventional medication, dietary practices play a crucial role in managing hyperthyroidism. While Ayurvedic research has identified medications for hyperthyroidism, there is a lack of research focused on informing the young generation about this condition and its related Ayurvedic dietary practices in Sri Lanka. Dietary interventions play a crucial role in managing hyperthyroidism and deserve greater emphasis for societal awareness. This study aims to address this gap by emphasizing the importance of informing society about hyperthyroidism and its associated dietary practices. The study employed a cross-sectional design to assess awareness among 100 undergraduate students aged 20-25 for the survey. For that, participants completed an online questionnaire, providing both qualitative and quantitative data. Additionally, a comprehensive literature review was conducted to identify suitable dietary plans for hyperthyroidism. Findings revealed a notable lack of awareness among young individuals regarding dietary practices for managing hyperthyroidism, regardless of their adherence to prescribed medications. Ayurveda provides extensive dietary guidance for managing hyperthyroidism, apart from medication adherence. Alongside a balanced diet, Ayurveda recommends specific foods like milk pudding, wheat flour with milk and ghee, and sesame (*Sesamum indicum*) seed oil containing substances to support thyroid health. In conclusion, introducing a dietary guidance from Ayurvedic perspective, potentially through the involvement of dietitians specializing in Ayurveda, emerges as crucial. Furthermore, emphasizing the importance of raising awareness among the younger generation about the accessibility and efficacy of these dietary interventions holds particular significance for addressing this gap and promoting better thyroid health in the future.

Keywords: Ayurveda, Awareness, Dietary practices, Hyperthyroidism, Young generation

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Abstract ID - 199

The age-old practice of smoking fish with wood varieties in Anuradhapura, North Central Province, Sri Lanka

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Anuradhapura area is well-known for the smoked inland fish. A range of smoking wood is employed by the dry zone processors to enrich the characteristic sensory attributes of smoked fish. Hence, this study focused on the sensory attributes of smoked fish prepared using the smoke generated from *Kon* (*Schleichera oleosa*) and *Seru* (*Aidia gardneri)* woods which are native to Sri Lanka. The freshly caught fish tilapia were eviscerated and washed with potable water thoroughly to remove the impurities. Thereafter, fish were cut into pieces of uniform sizes and seasoned with table salt at a ratio of 10 % (w/w) for 10 minutes. Two separate portions of salted fish were smoked for 10-12 hours in a hand-fabricated smoker, by burning the chunks of *Kon* and *Seru* woods respectively, until a golden-brown color, glossy appearance, and evolving characteristic smoky aroma was attained. The smoked fish prepared under each treatment was cooked incorporating the same ingredients (coconut oil, capsicum, onion, tomato sauce, and salt), following the same preparation methods. The sensory properties such as color, taste, aroma, mouth feel, texture, and overall acceptability of the cooked devilled fish were evaluated by 30 untrained assessors based on a five-point hedonic scale. The collected data were analyzed by Mann-Whitney U test and the results indicated that there was no significant difference ($p < 0.05$) in the palatability between the two dishes with high overall acceptability. Therefore, *Kon* and *Seru* are both acceptable for smoking fish.

Keywords: Smoked fish, Sensory properties, *Tilapia*

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Abstract ID - 241

An Ayurvedic vegan milk powder as a health drink: A review on nutritional and health aspects

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Food plays a crucial role in both health and diseases. An adequate and balanced diet can help prevent complications and aid in the proper development of health. Foods that are energy-dense and nutrient-poor are widely available in the market. As a result, many people consume large amount of fat, sugar, and salt that contribute to an unhealthy diet-which currently causes 8 million premature deaths globally every year. Ayurveda emphasizes diet patterns and daily regimens to overcome this matter. The present study anticipated to develop an herbal milk with sensorily accepted levels. This milk powder consists of *Kharjur* (*Phoenix dactilifera L.*), *Tila* (*Sesamum indicum*) and *Soya Masha* (*Glycine max*). The preliminary study performs a review of literature using Ayurvedic authentic texts, scientific articles in Pub Med and Google Scholar. *Tila* has antioxidant, cholesterol reduction, blood lipid regulation, hepatoprotective, nephroprotective, cardioprotective, anti-inflammatory and anti-tumour properties. *Kharjur* provides antioxidant, antimutagenic, antimicrobial, anti - inflammatory, gastroprotective, hepatoprotective, nephroprotective, anticancer and immunostimulant activities. The isoflavones in *Soya Mash* provides blood lipid regulation, antidepressant, anticancer, reproductive effect and antiosteoporosis. So, this Ayurvedic milk powder promotes national well-being and may reduce the risks of non-communicable diseases, challenges of aging and a healthier substitute for commercial malted milk powder. Before being released onto the market, this novel product should go through a rigorous preclinical and clinical trial process.

Keywords: *Ayurveda, Kharju, Milk powder, Soya masha, Tilai*

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Abstract ID - 262

Exploring the antioxidant potential of the aqueous extracts of *Piper sarmentosum* towards the development of novel functional candy

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Piper sarmentosum, commonly known as "*Gas Thippili,"* is an underutilized *Piper* species in Sri Lanka with promising medicinal properties. However, its antioxidant capacity remains largely unevaluated and commercially unexploited within the country. This study aimed to evaluate the antioxidant properties of aqueous extracts from *Piper sarmentosum* and to develop an herbal hard candy utilizing these extracts. Aqueous decoctions from the different plant parts were prepared, and their antioxidant activities were investigated using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) and peroxide (H_2O_2) assays. The extract with the highest activity was chosen for the functional hard candy development and subjected to phytochemical analysis. The herbal hard candies with different concentrations of *Piper sarmentosum* leaf aqueous extract (PSLE) were formulated with white sugar, glucose syrup, and different concentrations of PSLE (0 – 5 % w/v) in a 150:115:75 (w/w) ratio. The mixture was heated to 143 °C and poured into molds. The antioxidant capacity of the functional hard candy was quantified with DPPH assay and phytochemical analysis was performed to determine the presence of potential bioactive compounds contributing to the observed antioxidant activity. Results were statistically evaluated using Minitab 20 software. PSLE exhibited the highest antioxidant activity and it displayed IC_{50} values of 0.56 ± 0.038 mg/mL and 0.17 ± 0.014 mg/mL based on DPPH and H_2O_2 assays, respectively. Phytochemical analysis of PSLE identified the presence of alkaloids, phenolic compounds, and flavonoids as the major phytochemical groups. The functional candy containing different concentrations of PSLE exhibited a significant increase in antioxidant activity compared to the control candy in a dose-dependent manner (R^2 = 0.992). Phenolic compounds were the main bioactive components detected in the herbal hard candy through phytochemical analysis. In conclusion, this study suggests that PSLE is a promising source of antioxidants for herbal confectionery products, as it shows antioxidant activity even after undergoing processing conditions at high temperatures.

Keywords: Antioxidant activity, Herbal hard candy, Phenolic compounds, *Piper sarmentosum*

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Abstract ID - 264

Testing tradition: Investigating variations in Sri Lankan food from the Kandyan era to the present

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This study delves into the traditional food and culinary practices of Sri Lanka's Kandyan era (circa 1597 -1815). The primary aim was to investigate whether preserved traditions might reflect historical recipes, testing the null hypothesis of no significant difference between contemporary practices and Kandyan era cuisine. A survey was conducted in nine Central Province areas known for preserving traditions, collecting recipes used today. Additionally, historical culinary practices were gleaned from authentic Kandyan era texts. The comparison revealed intriguing divergences between documented historical recipes and those currently practiced. Notably, contemporary recipes often incorporate age-specific considerations, hinting at similar practices within the Kandyan era. Further insights arose from examining historical and contemporary condiments. While some historical meat preparation methods are no longer used, a rich tapestry of spices remains central to curries, emphasizing flavor, appetite stimulation, and fragrance. Interestingly, certain historical condiment recipes are no longer practiced, and some names exhibit South Indian influence. These findings suggest that Kandyan era food varieties may have reflected prevalent occupations. The prominence of chana and paddy-based dishes points to their importance in the diet, potentially indicating a connection to agricultural practices and occupations requiring sustained energy. Further investigation is needed to explore this link in detail and test the hypothesis that food variations existed across different social and occupational groups within Kandyan society. Additionally, the emphasis on recipes promoting digestive health aligns with Ayurvedic principles. This supports the notion that Kandyan era food practices prioritized digestive well-being, offering valuable insights into the interdisciplinary nature of Sri Lankan food culture. Overall, this research illuminates a significant diversity of food varieties and dietary patterns.

Keywords: Culinary practices, Digestive health, Food, Kandyan era, Recipes

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Abstract ID - 281

Testing of selected pharmacological activities of plants extracts of *Psidium guajava*, *Garcinia quaesita,* and *Cinnamon verom* to be used in functional food preparations

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This study is based on testing of some pharmacological activities of leaf extracts of *Psidium guajava* (Gu), *Garcinia quaesita* (Ga)*, Cinnamon verum* bark (CB) and, *Cinnamon verum* Leaves (CL) to be used in the development of functional foods and nutraceuticals as there is a dearth of study on the development of functional foods out of above plants leaves. Aqueous extracts of the leaves and bark of the plants were prepared using sonication followed by freeze-drying. Extracts of Gu, Ga, CB and CL were tested for *in vitro* anti-diabetic activity using alpha-glucosidase inhibitory assay, lipid peroxidase test using the spectrophotometric method and, antibacterial properties using agar disk diffusion assay. Total phenolic content (TPC) was determined using the Folin-Ciocaiteu spectrometric method. Antioxidant activity was assessed using the ferric reducing antioxidant power assay (FRAP) and 2,2′-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assays and total flavonoid content (TFC) was determined using the spectrophotometric method. According to the results, the highest alpha-glucosidase inhibition activity was observed by Gu (IC 50 - 17.50±0.40 mg/ml) compared with acarbose standards. CB exhibited the highest lipid peroxidase inhibition activity (IC 50 229.85±24.23 ppm) compared with the BHT standard (IC 50 132.02±2.53 mg/ml), and CB displayed the maximum antibacterial activity against selected four bacterial species (*Escherichia coli*-ATCC 25922, *Staphylococcus aureus*, *Streptococcus pneumonia* and *Methicillin-resistant Staphylococcus aureus)*. CB extract had significantly high total antioxidant activity in FRAP showing 174.92±1.80 mg Trolox/g and IC_{50} of DPPH giving 15.45±1.80 (126.40±2.92 mg/ml for standard of ascorbic acid), and CB contained higher values for TFC and TPC as 11.02±0.22 mg of quercetin/g and 136.88±1.42 mg GAE/g, respectively. As a conclusion, guava leaves and cinnamon bark extracts have the potential to be utilized in functional food and nutraceutical preparations.

Keywords: Anti-diabetic, *Cinnamon verom,* Functional*, Garcinia quaesita*, *Psidium guajava*

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Abstract ID – 292

HPTLC fingerprint analysis and heavy metal content of Siddha drug - *Pun podi*

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Pun podi, a potent tropical combination used in Siddha medicine, contains sulfur and *Datura metel* fruit. Despite its importance, research into the various compositions of *Pun podi* due to diverse preparation methods and seasonal variations remains lacking. The present study was conducted by preparing the drug using different methods used in Siddha medicine. The *Pun podi* was prepared in three ways by using *Datura metel* fruit, collected in three different seasons and named as *Pun podi* 1, 2, and 3. Heavy metal analysis was performed by using Bruker S8-Tiger WD-XRF analyzer. High-performance thin layer chromatography was used to analyze fingerprints on three different samples with duplicates. The data was then analyzed using a standard statistical approach in SPSS to identify significant differences among the 3 samples. SO_3, K_2O, P_2O_5, Ca, Na_2O, SiO_2 Cl, MoO_3 content showed significant differences ($p < 0.05$) between the *Pun podi* prepared by different methods while MgO, PbO, TiO_2, Al_2O_3, and Fe_2O_3 content did not show significant differences ($p > 0.05$) among the *Pun podi.* Statistically significant disparities linked to seasonal variations were observed in the oxide form of microelements present in *Pun podi*, derived from *Datura metel* fruit collected during different seasons ($p < 0.05$) except Fe_2O_3, PbO, and TiO_2 of *Pun podi 1* sample. Furthermore, except Mg, Ca, Si, Pb, Ti, Mo, and Fe, other microelements demonstrated significant differences among *Pun podi* prepared through various methods ($p < 0.05$). Notably, the majority of the microelements except P, Fe, and Mo exhibited significant variations in *Pun podi* sourced from different seasonal collections of *Datura metel* ($p < 0.05$). *Pun podi* 2 contained a higher concentration of both oxidized and elemental microelements compared to *Pun podi* 1 and 3 samples. Both seasonal factors and preparation methods exerted discernible influences on the microelement composition of *Pun podi*. HPTLC results showed that the 04 spots in *Pun podi* 2, 2 spots in *Pun podi* 1, and one spot in *Pun podi* 3, at 254 nm and according to the Rf value, two spots present among the four in *Pun podi 2* looks same as that are present in *Pun podi 1* and 3.

Keywords: *Datura metel,* Heavy metals, Microelements, *Pun podi*

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Zoonotic disease and traditional medicine

Abstract ID - 22

A review on *Matha Vruhati Dalu Anupana* in Sri Lankan traditional medicine

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Ayurveda is the one of the world's oldest healing systems and its roots entangled with the Sri Lankan Traditional Medical System. We refer to it as *Deshiyachikitsa*. Therefore, great combination of treatment practices are available to efficiently treat patients using a combination of medication compositions from these two systems. One such herbal preparation, *Matha Vruhati Dalu Anupana*, comes under *Buddharaja Kalka* and was a popular *Swarasa* (fresh juice) used for mostly *Kapha* imbalances with various therapeutic applications. Sri Lankan traditional medicine plays a major role in preventive and curative aspects of diseases. It is mentioned in *Vatikaprakaranaya* or *Beheth Guli Kalka Potha*. It was reviewed that, *Kapha* pacifying medicine due to its pharmacodynamics properties of *Katu* (pungent), *Thikta* (bitter) and *Kashaya* (astringent) *Rasa, Laghu* (light), *Ruksha* (dry), *Thikshna* (sharp) *Guna* accompanied by *Ushna* (hot) *Veerya* and *Katu* (pungent) *Vipaka*. As per modern medicine this formula contained mycolytic, expectorant, bronchodilator, and antioxidant actions. Hence, it can be concluded for use in many diseases such as *Kasa*(cough), *Swasa*(asthma), *Jwara* (fever) and other *Kaphaja* diseases. Interest in herbal formulations contributes significantly towards human wellbeing of the global population. In future studies, the efficacy of these herbs should be used to establish their therapeutic benefits either alone or in combination with conventional therapies.

Key words - *Buddharaja Kalka*, *Matha Vruhati Dalu Anupana*, Sri Lankan traditional medicine, *Vatikaprakaranaya*

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Pharmacology, pharmaceutics, and clinical trials

Abstract ID – 15

Antioxidant properties of brown algae, Sargassum crassifolium in Jaffna coastal water, Sri Lanka

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This study investigates the antioxidant properties of *Sargassum crassifolium*, a brown seaweed species, collected from Mathagal beach and Kankesanthurai beach areas in Jaffna coastal waters, Sri Lanka. While seaweeds are globally known for their diverse bioactive compounds and antioxidant potential, the specific antioxidant profile of *Sargassum crassifolium* in the Jaffna region remains largely unexplored. The methodology involved the collection and identification of *Sargassum crassifolium* samples, followed by sample preparation, extraction, and subsequent analysis through the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay with ascorbic acid serving as the reference standard, Total Phenol Content (TPC) analysis with tannic acid serving as the standard for calibration, and Total Flavonoid Content (TFC) analysis with rutin employed as the standard substance for calibration. The DPPH assay revealed *Sargassum crassifolium*'s remarkable radical scavenging activity, showcasing a scavenging activity of 17.73±0.05% at 3.62 μg mL^{-1}, which increased to an impressive 21.09±0.01% at 50 μg mL^{-1}. TPC analysis highlighted the phenolic compositions, with *Sargassum crassifolium* exhibiting 5.88±0.02 mg TA g^{-1}. In the TFC analysis, *Sargassum crassifolium* displayed flavonoid content at 9.05±0.05 mg RE g^{-1}. These findings underscore the antioxidant compositions of *Sargassum crassifolium*, emphasizing its potent ability to neutralize free radicals and its richness in phenolic and flavonoid compounds. These findings are in line with some literature that reports similar results, while others show both higher and lower values compared to our findings. The observed variations in antioxidant properties among seaweed species can be linked to factors such as biochemical composition, environmental influences, geographical location, habitat-specific characteristics, and nutrient availability. This research contributes valuable insights into the antioxidant potential of *Sargassum crassifolium* in the coastal waters of Sri Lanka, particularly in the Jaffna region, opening avenues for further exploration, development, and sustainable utilization of this marine resource. It initiates opportunities for further exploration, development, and sustainable utilization of this marine resource, promising advancements in pharmaceutical, nutraceutical, and cosmeceutical applications.

Keywords: Antioxidant properties, DPPH assay, Marine resources Sri Lanka, Total flavonoid content, Total phenol content

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Abstract ID – 20

Preliminary physico-chemical evaluation of *Kushta e Marjan Sada* prepared by classical and modern methods

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In Unani medicine most of the mineral-origin drugs are converted into *Kushta*, which is a microfine powder prepared through a specialized process called calcination. *Kushta e Marjan Sada* (KMS) is an Unani herbo-minero microfine powder commonly used for coughs, weakness of the heart, spermatorrhoea, etc. Standardization is essential to maintain the quality of herbal preparations. Hence, this study was aimed at assessing the quality of KMS using modern methods. KMS was prepared by using classical and modern furnace methods and preliminary physicochemical evaluation was done in both samples. The results of physicochemical tests of KMS prepared by classical method shows; bulk density 0.87± 0.006 g/ml, tapped density 1.43 ± 0.029 g/ml, Hausner's ratio 1.64 ± 0.0208, Carr's index 39.13 ± 0.913, loss on drying 0.22 ± 0.012 %, pH 9.35 ± 0.02, ash value 99.95 ± 0.075 %, and extractive value 0.21 ± 0.12 % whereas, the results of KMS prepared by modern methods are 0.91 ± 0.015 g/ml, 1.6 ± 0.005 g/ml, 1.76 ± 0.026, 43.18 ± 0.734, 0.22 ± 0.012 %, 8.90 ± 0.06, 99.95 ± 0.075 % and 1.075 ± 0.01 % respectively. *P* value less 0.05 has been considered as non-significant. This study has provided a standard reference for the physicochemical evaluation of KMS by the modern method. Further, as there were no significant differences observed in the physicochemical parameters of KMS prepared by classical and modern methods except in densities. Hence, we can assume that the Muffle furnace could be used instead of cow dung cake in the process of preparing *Kustha* to reduce the production cost and to maintain the uniformity of standard in every batch by avoiding fluctuation in the temperature regulation.

Keywords: *Kushta e Marjan Sada*, Physiochemical evaluation, Standardization

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Abstract ID - 21

Critical review on *Pancha Lavana*: five varieties of salt used in Ayurveda pharmaceutical preparations

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Pancha Lavana is a group of five types of salts that have been used in many of the Ayurveda formula since the ancient period. As different Ayurveda texts used different names for the same *Lavana* due to regional influences, contentious uses of them in the Sri Lankan pharmaceutical industry occurred. It directly affects the clinical properties of the medicine manufactured under the same name. To clarify the controversy and establish the equilibrium of usage of the standard salt all over the country, more than 14 Ayurveda textbooks and many research articles were critically reviewed. After discussing with the 39 reputed professionals and observing many salt samples from Sri Lanka and India, it is tried to set the terms and status of *Pancha Lavana* accordingly. Conferring to the classical text of *Charaka, Vagbhata*, etc., in *Pancha Lavana Saindhava, Sauvarchala, Vida, Samudra*, and *Audbhida* are included; while Sushruta, Sarangadhara, Bhavaprakasa, etc. replaced the *Romaka* for *Audbhida Lavana* and the other four are same as above. The study realized that the *Romaka Lavana* is equivalent to the *Audbhidha Lavana*. As per the critical analysis, *Pancha Lavana* is *Saindhava* (*Sahinda Lunu*/Rock Salt/ Bay salt /*Sodi chloridum*), *Souvarchala* (*Kalu Lunu*/ Sochal salt/ Unaqua sodium chloride), *Vida* (*Balal Lunu /salt petre*), *Samudra Lavana* (*Muhudu Lunu /Leva Lunu*/ sea salt/ common salt/ *Sodi muries*) and *Romaka/Audbhidha* (*Udbhidha Lunu*/ Sambhar salt/lake salt). Moreover, the following names that Sri Lankans use as *Lunu* (salt) are not considered as *Lavana Varga*. *Vedi Lunu* is *Sooryakshara* (*Souraka* / KNO_3) and *Yavakara Lunu* is *Yavakshara* (K_2CO_3), and both are included in *Kshara varga* (alkali). *Chullika Lavana* is ammonium chloride (*Navasaram*/ *Nawasadara*), one of the *Sadharana Rasa* in Ayurveda Rasa Shastra.

Keywords: *Audbhida, Lunu, Saindhava, Samudra, Vida*

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Abstract ID - 39

Exploration of phytochemical diversity in leaves and stem extracts of *Mimosa pigra* L.

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Mimosa pigra L., a member of the Fabaceae family, is indigenous to tropical America and has established a notable presence, particularly in the Central and Northwestern Provinces of Sri Lanka. This invasive species has significantly impacted biodiversity along the banks of the Mahaweli River. The present research aims to assess and compare the phytochemical variations inherent in the leaves and stem components of *Mimosa pigra* L., thereby contributing to a comprehensive understanding of its biochemical profile. Phytochemical analysis aids pharmaceutical research by revealing chemical diversity. The analysis included the presence and absence of nine key phytochemical classes: tannins, saponins, alkaloids, phenols, terpenoids, anthraquinone glycosides, steroids, flavonoids, and cardiac glycosides. For this study, *Mimosa pigra* L. leaves and stem ethanol crude extracts were prepared by using Soxhlet extraction or hot continuous extraction method. The phytochemical screening results indicated that the presence of tannins, saponins, alkaloids, and phenols in both the leaves and stem parts of *Mimosa pigra* L. These findings provided a clue about the shared chemical foundations in between the leaves and stem parts of the plant species. In addition to that, terpenoids, anthraquinone glycosides, and steroids were noticeably absent in both selected plant parts. Flavonoids were only found in the leaves, while cardiac glycosides were appeared as unique constituents within the stem parts of the *Mimosa pigra* L. plant species. The findings indicated the unique chemical profiles found in *Mimosa pigra* L. and emphasize the importance of considering various sort of plant parts when conducting phytochemical investigations. Acquiring knowledge regarding these phytochemical variations could not only lay the groundwork for potential pharmaceutical applications but also aid in advancing eradication strategies, exploring utilization opportunities and clarifying the ecological functions of this invasive plant species.

Keywords: Invasive plant, *Mimosa pigra* L., Phytochemicals

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Abstract ID - 42

Temperature Standardization in the Preparation of Unani Herbo-mineral Formulation -*Kushta e Marjan Sada*

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Kushta is a Persian word 'Kushtan' meaning 'killed', and technically, it refers to a method in which drugs like minerals, animals, and plants are ignited at high temperatures, leading to a fine powder known as *Kushta*. The procedure for its preparation is termed *Taklees. Busad e Ahmar,* or *Marjan,* is a valuable drug with multifarious medicinal uses. It is obtained from a marine source, *Corallium rubrum* L. It's commonly used for *Sual (cough*), *Zoaf e Qalb* (weakness of the heart), *Zoaf e Meda* (weakness of the stomach), and *Jiryan e Mani* (spermatorrhoea). Kushta e Marjan Sada is prepared with *Marjan* and paste of rose petals through the calcination process. There are some drawbacks to the classical method of calcination process as it is a very laborious and time-consuming procedure. There is also instability in the intensity of fire, while using cow dung cakes, difficulty in controlling temperature, quality of cow dung cakes used to produce heat, etc. Hence, this study was aimed at standardizing the temperature needed to prepare *Kushta Marjan Sada* by the classical method with cow dung cakes in order to prepare the same with modern equipment. *Kushta e Marjan Sada* was prepared by the classical method, and the temperature was recorded every 10 minutes with a digital thermocouple throughout the process. This process was repeated three times. The temperature readings were used to develop the thermogram. During the preparation of *Kushta e Marjan Sada,* the maximum temperature was reached within 2 hours (700 °C), and it was maintained for 10 to 15 minutes, and the temperature was gradually reduced. The thermogram was developed in this study and can be utilized to prepare the *Kushta Marjan* by the furnace method.

Keywords: Cow dung cake, *Kushta e Marjan Sada, Marjan, Taklees,* Thermogram

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Abstract ID - 44

Evaluating the effectiveness of specific Ayurveda formulae in the management of *Svithra roga* WSR to Leukoderma – A case series

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Leukoderma, also known as vitiligo or *Svitra roga* in Ayurveda, is an autoimmune disorder marked by the gradual loss of skin pigmentation, resulting in distinct white patches across various body surfaces. The prevalence of vitiligo ranges from 0.5 % to 2 % of the global population. Significantly, it affects physical appearance and is closely linked to a negative impact on individuals' mental well-being, causing a substantial decline in overall quality of life. The study aimed to investigate the pertinent causative factors, triggering elements, association with other disorders, and the impact of Ayurveda external and internal treatment interventions. Five vitiligo patients who self-reported and attended the skin clinic of the provincial Ayurveda hospital - *Meegoda* were chosen for study. Patients underwent a specialized treatment protocol specially designed to address *svitra roga*, incorporating both internal and external therapeutic approaches with disease-specified dietary advice. Internally, the regimen included *Datriyadi Kwatha*, *Chandraprabha Vati*, *Manibadra Churna*, along with external applications of *Bakuchi* oil and *Svithrahara Lepa*. As per Ayurveda treatment principles, a gradual transition from *Chandraprabha Vati*, *Arogya Vardhana Vati* and *Kaishora Guggulu* was implemented within the initial months of treatment, aiming to optimize therapeutic outcomes. A patient underwent the above comprehensive treatment, incorporating *virechana karma* as recommended in the *shodhana karma* category. The Ayurveda interventions spanned a duration of six months. The assessment of recovery progress was carried out, utilizing visual documentation through photographs. The specialized treatment protocol, encompassing both internal and external approaches, demonstrated notable success in enhancing re-pigmentation and a positive impact on the overall well-being of the five patients. Particularly, the inclusion of *shodhana* therapy in conjunction with other medications showed accelerated improvement, suggesting hopeful avenues for future treatment strategies in addressing this autoimmune disorder.

Keywords: Ayurveda, Quality of life, *Shodhana* therapy, *Svitra roga*, Vitiligo

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Abstract ID - 45

A phase 1 clinical trial in healthy human volunteers to determine the safety of a polyherbal formulation Link Livecare for liver health

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The global prevalence of non-alcoholic fatty liver disease (NAFLD) is estimated to be 24% and treatment is mainly confined to lifestyle modifications. Therefore, there is a need for exploring specific medicines and plant-based medicines to treat NAFLD. Link Livecare (LLC) is a proprietary Ayurveda polyherbal tablet comprising 14 herbs. This formulation has been previously tested in animals and safety and hepatoprotective efficacy was demonstrated. An open-label phase 1 study was conducted using 28 healthy volunteers who received an oral daily dose of 900 mg of actives for 90 days. Anthropometric, clinical, hematological and biochemical parameters were assessed at baseline and monthly intervals for four months. Adverse events and drug compliance were also assessed. 21 volunteers completed the 4-month study. The mean age was 28 ± 6 years and 85.7% were males. The anthropometric parameters, weight and BMI showed significant reductions during the 4-month follow-up. The clinical and biochemical (liver and renal profile) and hematological parameters remained within the normal range. There were no significant adverse events reported and none discontinued the study due to adverse events. The mean drug compliance was 88.9%. Our study showed that LLC may be safe for human use and effective in reducing weight in healthy volunteers. The beneficial effects of LLC on anthropometric measurements indicate that LLC Phase 2 trials need to be conducted in patients with NAFLD, to study in detail the adverse events if any, and better describe the pharmacodynamic properties of LLC.

Keywords: Adverse events, Ayurveda, Liver health, Phase 1, Polyherbal, Safety,

Trial registration: Clinical Trials Registry in Sri Lanka (SLCTR/2021/030).

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Abstract ID - 67

A review on medicinal value of *Amaranthus viridis*

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This study was conducted to review the medicinal usage of *Sulukura* in many aspects and information was gathered from Ayurveda, traditional, modern medical books and research papers. The plant is 30-56 cm tallstem with simple *Amaranthus viridis* [L], belongs to family (Amaranthicea) commonly known as *sulukura* in Sinhala and *Tanduuliyaka* in Sanskrit. It is a vegetable used in different dosage forms. Ayurveda Pharmacodynamic properties are *Madura rasa, Laghu Ruksha Guna, Sheetha virya, Madura vipaka*, *rasayana* effect in *prabawa.* In toxic conditions and burnings, ground leaves are applied externally. Internally used in treating *Aruchi, Agnimandya, Vibandha, Hrid Roga, Raktapitta, Raktaatisara, Raktapradara Raktaarshash, mutrakrichcha and Visha.* In modern perspective, *t*he whole plant contains antioxidant and antimicrobialconstituents, flavonoids, phenolic compounds. It is rich in proteins, carbohydrates, minerals, vitamins, specially vitamins A, B6, C, K, folate and minerals such as iron, phosphorus and magnesium. According to Ayurveda, diseases manifest due to *Doshic* imbalance. With *Laghu, Ruksha guna*; it pacifies *Vata* and *Kapha* and P*itta* is pacified with *Madhura rasa*, *Madhura Vipaka* and *Sheeta Virya*. It produces antioxidant, Anti- inflammatory effect etc. due to *Rasayana* activity. It can be concluded that even though sulukura is a very common gregarious weed in Sri Lanka; its medicinal andnutritional value is very high. Hence it can be recommended for cultivation and propagation properly.

Keywords: *Amaranthus viridis*, Ayurveda Pharmacodynamic properties, Pharmacological, Phytochemical

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Abstract ID - 87

Studying bee honey in different areas of Sri Lanka

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Bee honey is a commonly used natural ingredient in *Ayurveda* due to its medicinal and therapeutic properties. The objective of this study was to conduct a physicochemical analysis of bee honey samples collected from different areas of Sri Lanka. All the samples were directly collected from bee combs in *Anuradhapura*, *Kurunegala*, *Matale*, *Matara* and *Monaragala* districts (sample A, B, C, D and E). All were assessed for organoleptic, physical and chemical parameters. Total sugar content in each sample was measured using refractometer. Results revealed that samples A, B, C and E were dark brownish color and sample D was light color. Total ash values were 0.65%, 1.1%, 0.2%, 6.75%, 0.3% respectively and only C and E were within the standard range of 0.14% - 0.30%. The moisture contents were 26.35%, 22.15 %, 19%, 25.5%, and 21.1% respectively and it revealed that samples B, C and E were within the standard range of 18% - 23%. All the samples were acidic with pH values 3, 2.7, 3.5, 3, and 2.1 respectively and standard range for pH value in bee honey is 3.2 - 4.5. Only sample C was within the normal pH range. Total sugar contents were 73%, 76.5%, 77.5%, 74%, and 77.5% respectively and C and E were having the highest sugar content. TLC fingerprints (ethyl-acetate: methanol/1:1) were not the same for all the samples. Chemical profiles were detected using HPTLC fingerprints indicating 6 peaks for sample A, 5 peaks for samples C and E and 4 peaks for sample B. This study suggests that sample C, which was collected from Matale District, Sri Lanka matches with the quality standards for bee honey.

Keywords: Bee honey, HPTLC, Matale, Physico-chemical, Sugar content

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Abstract ID - 94

Preparation of face cream for uvanapidaka viz -a -viz acne with special reference to *Manjishtadi* oil

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In Ayurveda, *Uvanapidaka* is a specific type of skin disease which has a direct effect on skin beauty. Ayurveda Susruta samhitha mentioned that vitiation of *Kapha*, *Vata* and *Rakta* together results in *Uvanapidaka,* which has an appearance of a prickles of *Bombax malabaricum* tree. *Malahara kalpana* is the most effective external pharmaceutical preparation for *uvanapidaka* according to Ayurveda and it can be correlated with ointments, creams, and lotions in modern pharmaceutics. The objective of this study was to prepare a cream for *uvanapidaka* by using *Manjishtadi oil* according to the references of Ayurveda pharmacopeia. *Manjishtadi oil* has a nourishing effect on skin, improves skin complexion, and reduces skin inflammations. Decoction of *Rubia cordifolia*, *Glycyrrhiza glabra*, resin of *Croton laccifer*, *Citrus medica*, goat milk and water (16 parts) were mixed with 4 parts of sesame oil and 1 part of *kalka* to prepare the oil. Kalka was made by grinding dry powders *R. cordifolia*, *G. glabra* and *C. medica* with resin of *C. laccifer*. *Manjishtadi* oil and bee's wax was mixed with the ratio of 1:6 to convert it into a cream (sample A). Sample B was prepared by using preservative and sample C was prepared by adding fragrance. Physico-chemical analysis and phytochemical analysis including HPTLC were performed for the cream. The results revealed that total ash content (1.24%) and pH value (5) were within the normal range suitable for the skin. Methanol extract was positive for tannins, alkaloids, and flavonoids. Chemical profile of the product was obtained using HPTLC fingerprint (toluene: hexane:ethylacetate 1:1:1 v/v%). There was not any significant change in color, odor or appearance of all three samples during 40 days of shelf-life determination. Physico-chemical analysis concludes that the cream is having standard quality and purity. Phytochemical analysis determines that the cream may have antioxidant, anti-fungal and anti-bacterial properties, which are beneficial for skin diseases.

Keywords: Antioxidant, Manjishtadi oil, Ointment, Skin complexion, Uvanapidaka

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Abstract ID - 96

Determination of *in vitro* enzyme inhibition, antioxidant activity, antibacterial efficacy, and phytochemical analysis of *Atalantia ceylanica* (arn)

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Atalantia ceylanica (arn), a member of the Rutaceae family indigenous to southeast Asia, remains relatively understudied for its biological effectiveness with insufficient scientific information available in the literature. This investigation involved preparing and extracting mature leaves and bark using DMSO and methanol solvents, followed by assessing antioxidant, anti-inflammatory, qualitative phytochemical, and antibacterial activities. The DPPH radical scavenging assay revealed concentration-dependent responses in leaf and bark extracts, indicating therapeutic potential within 0.02 mg/ml to 0.1 mg/ml concentration range. Particularly, the methanolic bark extract exhibited the highest DPPH radical scavenging activity of 89.9% concentration at 0.5 µg/ml. Similarly, concentration-dependent anti-inflammatory effects were observed in leaf methanol extracts, ranging from 0.025 mg/ml to 0.16 mg/ml, reaching a peak inhibition of 89.55 % at 0.16 mg/ml. The antibacterial screening assay demonstrated concentration-dependent effects of methanolic and aqueous extracts from both bark and leaf, with notable activity against *Pseudomonas aeruginosa*, *Klebsiella pneumoniae, Staphylococcus aureus*, and *Escherichia coli* at concentrations of 50 mg/ml, 60 mg/ml, and 80 mg/ml. *S. aureus* exhibited the highest inhibition against methanolic extracts of leaf and bark at 80 mg/ml and 60 mg/ml, respectively, whereas, only the bark methanolic extract showed activity at 60 mg/ml. Aqueous extracts of both bark and leaf exhibited no antibacterial activity against *S. aureus*. Especially, *P. aeruginosa, K. pneumoniae,* and *E. coli* displayed significant zones of inhibition with both aqueous extracts. The presence of phytochemical compounds such as glycosides, phenols, tannins, terpenoids, alkaloids, and flavonoids in the leaf and bark of *A. ceylanica* highlights its potential as a natural antibacterial agent. In conclusion, the diverse medicinal properties of methanolic extracts from *A. ceylanica*, as demonstrated through phytochemical analysis and concentration-dependent antioxidant, anti-inflammatory, and antibacterial activities, emphasize its significance for pharmaceutical and medicinal applications. However, further *in vivo* studies are essential to fully comprehend the therapeutic impact of *A. ceylanica* plant extracts.

Keywords: Anti-bacterial activity, Anti-inflammatory activity, Antioxidant activity, *Atalantia Ceylanica*, Phytochemical analysis

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Abstract ID - 102

A Review on medicinal uses of Mangrove *Xylocarpus granatum* in Sri Lanka

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Xylocarpus granatum is one of the 21 species of most common and widely distributed true mangroves in Sri Lanka. *X. granatum* is also known as *Mutti Kadol* which means "pot-mangrove," because of its enormous fruit that resembles a hanging pot. Different extractions of this tree are traditionally used to treat various diseases, including diarrhea, urologic diseases, dysentery, fever, skin diseases and viral infections in Sri Lankan indigenous medicine (Ayurveda medicine) as well as some other traditional medicines in Southeast countries like China and Korea. Different plant parts of *X. granatum* of leaf, stem bark, fruits and seeds have been tested and revealed many medicinal uses with a wide range of chemical constituents such as limonoids, flavonols, alkaloids, phenolics and steroids. Moreover, studies indicate that fruit is used to treat elephantiasis and breast swellings, and that seed ash combined with sulfur and coconut oil is used as an ointment for itching. Findings revealed that *X. granatum* has significant antioxidant, anticancer, antidiabetic, antibacterial, antimalarial, antifeedant, and neuroprotective properties. *X. granatum* is potentially a beneficial plant for treating various human ailments in Sri Lanka but clinical trials on the use of *X. granatum* and its bioactive components or extracts are still lacking, and not much study is being done on utilizing *X. granatum* to promote the development of plant-based medications. Therefore, more studies are required to better understand its chemical composition, use it as a novel medicine in human trials, and look into its mode of action for treating various medical conditions and use in pharmacology for developing drugs.

Keywords: Indigenous medicine, Mangrove, Pharmacology, *Xylocarpus granitum*

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Abstract ID - 115

Comparative study of *bhashma* prepared by using different marine-originated animal materials

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Rasa shastra is a main pharmaceutical branch in *Ayurveda*. Mercury is the main material in *Rasa shastra.* Other than mercury, different animal materials, minerals, gems, marine-originated materials and some toxic plants are also described under *Rasa shastra*. *Shankha*, *Shukthi* and *Kaparda* are some of the commonly used marine-originated animal materials. These materials contain calcium and are categorized under *Suda varga*. The objective of this study is to prepare *shankha, shukthi* and *kaparda bhashmas* according to *Rasa shastra* and to perform the physico-chemical analysis of these *bhashmas* including the determination of calcium percentage. The boiling and steaming method were used for the purification, and incineration was done by using the muffle furnace at 550 °C. *Bhashma* standardization parameters such as *Rekha purnatva, Varitharathva, Uththama, Gatha rasathva, Avami, Anjana sadrusha sukshma* and *Danta grana kacha kacha* were performed for all these *bhashmas*. The calcium percentage in each *bhashma* was determined using titration method. Results revealed that all the *bhashmas* are within the standard parameters according to classical texts. According to modern physico-chemical analysis, total ash contents were 99.2%, 98.5%, and 98% respectively. Acid insoluble ash values (52%, 77.8%, 57% respectively) were higher than water soluble ash values (3.8%, 2.65%, 1.65% respectively). The moisture content of all the samples were relatively low (0.4%, 1.3%, and 0.95% respectively). All the samples have an alkaline pH value (8.2, 8, 8.7). The highest calcium percentage was reported from *shukthi bhashma* (99.3%) and lowest from *kaparda bhashma* (78.4%). It can be concluded that all the *bhashmas* were having the standard quality according to *Ayurveda* as well as modern physico-chemical parameters. Among these, *Shukthi bhashma* which has the highest calcium percentage can be highly recommended as a nutritional supplement for calcium deficiencies.

Keywords: *Bhashma*, Calcium percentage, *Kaparda*, Marine originated, *Shanka*, *Shukthi*

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Abstract ID - 117

Assessment of hepatoprotective activity of *Bilwadi Agada*: A retrospective human study

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Liver biochemical analysis is most common in monitoring patients with symptoms of liver impairment. Many xenobiotics have been linked to liver injury. Liver plays a central role in the metabolism and excretion of xenobiotics which makes it highly susceptible to their adverse and toxic effects. Being a vital organ of the human body protecting or revising normal liver function is crucial in clinical practice. The liver function test is a routine biochemical test to evaluate the state of liver. Hence the objective of this study was to evaluate the effect of *Billwadi Agada* on impaired liver function due to chemical induced toxicity. This retrospective study was performed using records of patients who visited the *Agada Tantra* Clinic in NIA hospital, Jaipur between July 2023 and December 2023. The inclusion criteria were having impaired liver function due to chemical toxicity in past medical history, treated with *Bilwadi Agada* for 45 days and availability of data before and after treatment. Age, gender, disease, other therapeutic agents used for treatment, administration date, results of liver function tests (cut off level of aspartate aminotransferase (AST40U/L), alanine aminotransferase (ALT41U/L), alkaline phosphatase (ALP129U/L), total bilirubin (T.Bil1.2mg/dl) and gamma glutamyl transferase (GGT 60U/L)) before and after administration of *Bilwadi Agada* were retrieved from the patient records. One hundred two (102) records were screened, and 34 case records were included in the study. Most of the participants were among the 30–40-year age group, had 58.8% of alcoholic liver disease, 23.5% reported drug addictions and 17.64% received chemotherapy. Data were analyzed using the Wilcoxon signed-rank test, and $p < 0.05$ were considered as statistically significant. There was a statistically significant decrease in AST, ALT, ALP, ALT, T.Bil and GGT levels in post-administration of *Bilwadi Agada* . Therefore, treatment with of *Bilwadi Agada* is effective in recovering from impaired liver function.

Key words: *Bilwadi Agada*, impaired liver function, toxicity

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Abstract ID - 119

The secondary metabolite biosynthesis gene clusters of *Mikania micrantha*: an *in-silico* approach to validate its bioactive properties

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Mikania micrantha (family *Asteraceae*), also known as the bitter vine, is native to tropical America and predominantly used in traditional medical practices. Previous studies have identified antioxidant, antibacterial, anticancer, antifungal, antiparasitic, anti-inflammatory, antidiabetic, and wound-healing bioactive properties of this plant. In the present study, the genomic basis of those bioactivities was analyzed *in-silico* using the genome of the plant available in GenBank database (GCA_009363875.1). The coding regions of the genome were analyzed for secondary metabolite biosynthesis gene clusters using the tool Antismash (RRID: SCR_022060). From the results, three gene clusters responsible for enzymes producing secondary metabolites were identified. The function of each enzyme was identified by referring to the UniProt (RRID: SCR_002380) database and their potential biosynthetic pathways were determined using the tool Blast Koala of the KEGG database (PRID: SCR_018145). KEGG results indicated that all three identified gene clusters are responsible for several KEGG orthologs. Among those KEGG orthologs, KEGG pathway maps were available only for four orthologs. Among these four, 3,5,7-trioxododecanoyl-CoA synthase (KO: K20503) was directly involved in the cannabidiol biosynthesis pathway. Cannabidiol is a secondary metabolite leading to antimicrobial, antioxidant, anticancer, and anti-inflammatory activities in the plant. The pinosylvin synthase pathway leads to the formation of pinosylvin, which has anti-inflammatory, antioxidative, and antiproliferative properties. Curcumin synthase and demethoxycurcumin synthase were also indicated in the KEGG pathway, leading to the production of curcumin which was previously identified with several bioactive properties. Based on the results it can be concluded that the *Mikania micrantha* plant genome consists of secondary metabolite gene clusters leading to various bioactive properties. The accuracy of these findings could be enhanced by incorporating genomes of the plant from various locations into the analysis. Additionally, conducting laboratory experiments to validate the findings of the present study would further strengthen their reliability.

Keywords: Bioactive properties, *in-silico*, *Mikania micrantha*, Secondary metabolites

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Abstract ID - 120

Therapeutic efficacy of selected Ayurveda formulae in liver diseases WSR to non-alcoholic fatty liver disease (NAFLD): A case series

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Liver diseases (LD) pose a substantial global health concern, given their widespread prevalence, severe complications, and the considerable strain they impose on health systems. Among the spectrum of liver diseases, Fatty Liver Disease (FLD) stands out as one of the most widespread conditions globally. Among them, Non-Alcoholic Fatty Liver Disease (NAFLD) affects individuals who either consume minimal or no alcohol. NAFLD encompasses conditions ranging from simple steatosis to Non-Alcoholic Steatohepatitis (NASH) and can progress to severe complications such as liver cirrhosis and hepatocellular carcinoma. This clinical study aimed to investigate the impact of *phalatrikadi kwatha* and *Triphala guggulu* on five patients with NAFLD treated at the outpatient department of Provincial Ayurveda Hospital - *Meegoda* and National Ayurveda Teaching Hospital – *Borella*. A purposive sample method was used for the patient selection and the data was collected by using a specially prepared proforma. The study spanned a two-month treatment period. The assessment criteria encompassed a comprehensive evaluation involving a comparison of signs and symptoms both pre- and post-treatment. The analysis extended to changes in biochemical parameters and liver ultrasonography findings. The results underscored notable advancements in crucial liver function parameters, revealing an average decline of 10.2 U/L in serum aminotransferase levels (AST/SGOT) and a significant average reduction of 20 U/L in Alanine aminotransferase levels (ALT/SGPT). Additionally, a mild improvement in kidney functions was observed without any adverse effects, and positive changes were noted in the lipid profile. Subjective parameters exhibited substantial recovery, with a 97% improvement, contributing significantly to an overall enhancement in the patient's quality of life. However, there were no observed changes in the ultrasonography results within the specified period. The study revealed the potential efficacy of Ayurveda formulations in managing NAFLD.

Keywords: Ayurveda formulations, Liver disorders, Non-alcoholic fatty liver diseases

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Abstract ID - 121

Bioassay-guided fractionation of anti-obesity compounds from *Murraya koenigii*

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Inhibiting pancreatic lipase, which is essential for triglyceride digestion, is a therapeutic approach for controlling obesity. Commercially available drugs like Orlistat exhibits many side effects. Thus, exploring plant-derived pancreatic lipase inhibitors is necessary for developing safer anti-obesity medications. *Murraya koenigii* is a phytochemically rich traditional herb but the anti-obesity potential of its isolated compounds is not explored extensively. Hence, the objective of this study was to isolate and identify bioactive compounds with significant anti-obesity potential. Air-dried and ground plant leaves were subjected to sequential extraction with hexane, ethyl acetate, and methanol, to obtain three solvent extracts. Pancreatic lipase assay was used to determine the anti-obesity potential of solvent extracts and isolated compounds. Additionally, α-amylase assay was performed to investigate the anti-diabetic activity of these extracts. Orlistat (IC_{50} 9.869±0.686) and acarbose (IC_{50} 11.021±0.232) served as positive controls for pancreatic lipase and α- amylase assays respectively. The hexane extract, with the lowest IC_{50} value of 73.670±3.110, showed the highest pancreatic lipase inhibitory activity and it was subjected to column chromatography to isolate bioactive compounds. Bioassay-guided fractionation afforded four compounds from the hexane extract, and they were labelled as 1-4. High-performance liquid chromatography was employed to analyze the chemical fingerprinting of the extracts. Compound 3 was identified as Mahanimbine by comparing reported FT-IR, UV absorption maxima, and melting point data, with IC_{50} values of 81.377±0.831 and 30.235±1.617 for pancreatic lipase and α-amylase assays, respectively. The FT-IR analysis of compound 4 revealed the presence of an N-H functional group. Additionally, a confirmatory test for compound 4 showed a purple color spot upon spraying with 10% sulfuric acid and heating, indicating the presence of a carbazole alkaloid. This compound demonstrated the most potent pancreatic lipase inhibition (IC_{50} 29.966 ± 0.477) and also displayed significant α-amylase inhibitory activity (IC_{50} 70.320 ± 4.190). Compounds 1 and 2 were identified as simple carbonyl compounds and showed lower pancreatic lipase inhibitory activities (IC_{50} 196.170±5.520 and 122.598±1.271, respectively). Although Mahanimbine showed a higher activity for α-amylase inhibition, compound 4 surpassed it in pancreatic lipase inhibition, marking compound 4 as a promising anti-obesity agent.

Keywords: α- Amylase, Anti-obesity, Mahanimbine*, Murraya koenigii*, Pancreatic lipase

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Abstract ID - 123

Pharmaceutical and analytical study of *Narikelakhanda*

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Narikhelakhanda belongs to *Khanda Kalpana* according to *Bhaisajya Kalpana. Khanda* generally refers to a sugar-based herbal preparation. *Narikhelakhanda* is a preparation where the pulp of coconut is the main ingredient. It is mainly indicated for colic pain, gastritis, vomiting, and heart diseases. Coconut pulp has a high nutrition value as it is rich in fibers, vitamins and minerals. The objective of this study was to prepare the *Narikhelakhanda* and to execute organoleptic, physicochemical and pharmaceutical analysis of the preparation. *Narikhelakhanda* was prepared according to the classical reference of *Bhaisajja Ratnavali Shularoghadhikara*. Pharmacodynamic properties of all the ingredients of the preparation were analyzed according to the classical *Ayurveda* texts. Physico-chemical parameters such as total ash value, acid-insoluble ash and water-soluble ash values, moisture content and pH were analyzed according to the WHO Quality control methods for medicinal plant materials. The ethanol extract of *Narikhelakhanda* was obtained by Soxhlet extraction and concentrated using rotary evaporator at 40 °C for phytochemical analysis and HPTLC. Results revealed that *Narikhelakhanda* was having pharmacodynamic properties which are suitable for an anti-gastric drug. Physico-chemical analysis revealed that it has a total ash value of 3.4%, acid-insoluble ash value of 0.5%, water-soluble ash value of 1.7%, moisture content of 21.3% and a pH of 5.3. The ethanol extract was positive for alkaloids, tannins, carbohydrate, proteins, terpenoids, steroids and cardiac glycosides while flavonoids and saponins were negative. TLC was developed using the toluene: ethyl acetate: chloroform: methanol (3.8: 2.3: 1.5: 2.3 v/v%) solvent system. HPTLC fingerprint gave seven peaks. The pharmacodynamics properties, physico-chemical analysis and phytochemical analysis show *Narikhelakhanda* has anti-gastric action.

Keywords: *Amlapitta, Narikhelakhanda,* HPTLC, Phytochemical, Physio-chemical

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Abstract ID - 125

Development and analysis of novel herbo-mineral analgesic ointment

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Pain occupies a special place in the discussion of the nervous system. People are seeking quick pain-relieving medications as it is one of the most annoying and uncomfortable sufferings that causes great harm. The objective of this study was to develop and analyze a novel herbo-mineral analgesic ointment with reference to the *paribhasha* of *Malahara kalpana* in *Ayurveda*. Initially decoction was prepared using *Vitex negundo*, *Oroxylum indicum*, *Zingiber officinal*e and *Salmalia malabarica* as herbal ingredients and purified sulphur as the mineral component. Sulphur was purified using cow's milk. The prepared decoction was freeze-dried. The freeze-dried aqueous extract was mixed with bee's wax, sesame oil and camphor in a ratio of 1:6:1. Two samples of the ointment were prepared. Sample A was prepared by adding 0.2% potassium sorbate as a preservative and sample B was prepared without adding any preservative. Then the physicochemical parameters, pH value, moisture content, total ash value, phytochemicals, TLC and HPTLC were carried out. All tests were performed at room temperature. Results of organoleptic parameters revealed that the ointment was brown in color, oily in consistency, with a smooth texture, a pleasant camphor odor and uniform in nature. pH value was found to be 5, which is favorable for the skin. Moisture content was 7.8%, and total ash value was 0.85%, which is within the standard limits for an ointment. HPTLC (toluene: hexane:ethyl acetate – 1:1:1) fingerprint of the methanol extract was reported with 8 peaks. Phytochemical analysis of the extract indicated the presence of tannins, alkaloids and flavonoids in the methanol extract of the ointment. The results of the pharmacodynamic properties and analysis of phytochemicals concluded that this ointment possesses an analgesic action, which could be due to the presence of these bioactive compounds in the ointment.

Keywords: Analgesic, Herbo-mineral, HPTLC, *Malahara kalpana*, Ointment

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Abstract ID - 149

Review on therapeutic uses and biological activities of *Desmodium triflorum* (L). DC

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Desmodium triflorum is one of the important medicinal plants which is well-described in Ayurveda and indigenous medical systems. *Desmodium triflorum* belongs to the family of Fabaceae and is commonly known as creeping Tick Trefoil, *Hansapādi* or *Heen undupiyaliya.* Since this plant grows as a weed, it is being extensively destroyed due to the poor knowledge about its medicinal value. Hence, the objective of this study was to gather previously reported data on the medicinal value of this plant by correlating its scientifically validated biological activities with its ethnopharmacological uses. The literature data was gathered through authentic Ayurveda texts, scientific journals, and other authentic texts. According to findings, *Desmodium triflorum* has a potential in managing various health conditions, mainly for liver disorders, respiratory ailments, neurological diseases, fever, dysentery, toothache, wounds, and skin diseases. Furthermore, Ayurveda literature treaties have mentioned several applications such as on micro infections, specifically pīranga yoga (syphilis), and eye diseases. In Sri Lankan traditional medical practice, this plant has been used to treat snakebites, as a cleansing liquid and as an awagāha (Sitz baths) in hemorrhoid conditions. Also, traditional practitioners advised walking over the *Desmodium triflorum* plant layer to refresh overall well-being. According to modern findings, *Desmodium* shows anti-inflammatory, antibacterial, antifungal, antiepileptic, radio-protective, anthelmintic and antioxidant activities. According to the literature analysis, all collected data concluded that different parts of *Desmodium triflorum* are used to cure a range of diseases as internal and external medicine. Further, this plant emerges as a valuable natural resource with a significant potential for the development of novel therapeutics to address a wide range of health challenges.

Keywords: Ayurveda, *Desmodium triflorum,* Dysentery, Medicinal plant

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Abstract ID - 151

Survey on medicinal uses and biological activities of *Pothos scandens* L.

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Pothos scandens L. (*Pota well)* is one of the important medicinal plants which belongs to the family Araceae and is reported to have a range of medicinal claims, especially in the Sri Lankan traditional medical system. However, the knowledge among people regarding the uses, actions and toxicity of this valuable plant is considerably low due to a lack of studies. Hence, the objective of this study was to compile data on *Pothos scandens* L. regarding therapeutic values, pharmacological properties and ethnomedicinal uses. Primary data was gathered from medical practitioners relevant to Ayurveda and traditional medicine through standard questionnaires and index interviews. Secondary data was compiled through authentic Ayurveda texts, scientific journals, and other authentic texts. According to findings, *Pothos scandens* L. has the potential to manage various health conditions, including asthma, smallpox, wounds, and various musculoskeletal disorders. In China, this plant is used as a blood coagulant. In Sri Lanka, most traditional practitioners used the whole plant to prepare a unique external preparation called *Mallum* which frequently used to cure orthopedic conditions including bone fractures. Modern findings revealed that this plant contains the high free radical scavenging and antipyretic activities. Pharmacological studies report its anti-inflammatory, anticancer, antioxidant, wound healing, and anti-histamine activities due to a range of phytochemicals. According to the literature analysis, all collected data concluded that different parts of *Pothos scandens* L. are used to cure a range of diseases as both internal and external medicine. This plant has multifaceted ethnomedicinal claims and needs proper pharmacological and clinical studies to explore novel therapeutics to address a wide range of health challenges.

Keywords: Ayurveda, Ethnomedicine, Fractures, *Pothos scandens* L.

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Abstract ID - 152

Antioxidant activity of freeze-dried aqueous extract of *Crateva adansonii* DC. stem bark decoction using DPPH and FRAP methods

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Crateva adansonii DC. is an evergreen tree which belongs to the family Capparidaceae. *Ayurveda* authentic texts have indicated the stem bark decoction of this plant for the treatment of urinary disorders. A previous study concluded that both freeze-dried aqueous extract (75.9% at 35 mg concentration of extract) and ethanol extract (71.3% at 35 mg concentration) of the *Crateva adansonii* DC stem bark have anti-urolithic activity. Both extracts were positive for alkaloids, tannins, flavonoids, steroids, glycosides and proteins while only the aqueous extract was positive for saponins, and the ethanol extract was positive for terpenoids according to the previous study. It has been proven that the presence of phytochemicals such as flavonoids and phenols can contribute towards the antioxidant activity and it can provide more protection against urinary disorders, which is the main indication of this plant. The aim of this study was to evaluate the antioxidant activity of freeze-dried aqueous extract of *Crateva adansonii* DC. stem bark decoction. Antioxidant activity of the extract was determined by 2,2-diphenyl-1-1picrylhydrazyl (DPPH) free radical scavenging assay and ferric reducing antioxidant power (FRAP) assay methods. Trolox was used as the positive control in both assays. The results revealed that the extract was capable of scavenging the DPPH free radicals by 8.06±0.39, 12.59±0.86, 17.69±0.17, 28.21±0.88 and 54.73±0.35% at concentrations of 78.13, 156.25, 321.5, 625 and 1250 µg/ml respectively. IC_{50} of the extract was found to be 1161.51±18.12 µg/ml (Trolox IC_{50} 10.06±0.10µg/ml). Antioxidant activity of the extract against the DPPH assay was 8.67±0.14 mg Trolox equivalents/g of the sample. FRAP value was obtained by comparing the absorbance at 593 nm of the extract and the standard Trolox. FRAP value was found to be 17.44±0.55 mg Trolox equivalents/g of sample.

Keywords: Antioxidant, Aqueous extract, *Crateva adansonii* DC., DPPH, FRAP

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Abstract ID - 155

Role of selected spices in the management of diabetes: A review

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Diabetes is a growing global health problem that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. A spice is any dried seed, fruit, root, bark, or other plant substances in a form primarily used for flavoring or coloring the food. Evidence suggests that spices can contribute to reducing the risk of metabolic disorders. This study was carried out to give an overview of selected spices like cinnamon, fenugreek, ginger, and black seeds in the management of diabetes by reviewing the recent scientific evidence. Published journal articles were filtered from PubMed, and Google Scholar. Search terms such as 'cinnamon', '*Cinnamomum verum'*, 'fenugreek', '*Trigonella foenum-graecum L.*', 'ginger', '*Zingiber officinale*', 'black seeds', '*Nigella sativa'* combined with 'diabetes', 'hypoglycaemic' and 'blood glucose' were used for articles published from 2013 to 2023. A total of 53 articles were filtered and scrutinized. Human, animal, and laboratory studies were considered. Many studies on cinnamon indicated the strong association of this spice with blood sugar control due to an insulin-mimetic effect and via the inhibition of digestive enzymes. The impact of fenugreek in patients with diabetes was usually considered to be from the soluble fiber in the seeds and other compounds such as flavonoids, saponins, and alkaloid trigonelline. Ginger appeared to confer beneficial effects on blood glucose and insulin in diabetic patients. Thymoquinone and other terpenoids in black seeds are responsible for healthy glucose levels. These results suggests that the above spices may be useful in the management of diabetes. However, further research is needed to validate the therapeutic actions of spices in the management of diabetes.

Keywords: Black seed, Cinnamon, Diabetes, Fenugreek, Ginger

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Abstract ID - 160

Exploring the Therapeutic Potential of Psidium guajava Leaves: A Comprehensive Review

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Psidium guajava leaves, abundant in phytochemicals, exhibit promising therapeutic applications in traditional and modern medicine, cosmetics, and the food industry. This comprehensive review aims to systematically evaluate their pharmacological properties and potential uses through literature review. The primary objective is to comprehensively assess the therapeutic potential of Psidium guajava leaves, encompassing a thorough literature review to gather insights on their botanical description, traditional uses, and phytochemical composition. Additionally, the review seeks to analyze their pharmacological properties, including antioxidant, antimicrobial, anti-inflammatory, and antidiabetic activities, while exploring potential applications in medicine, cosmetics, and food. Moreover, efficacy in various disease models will be evaluated through in vitro assays and animal studies. Methodologically, a systematic literature review will be conducted using databases like PubMed, Scopus, and Google Scholar and authentic classical texts. This review aims to integrate existing knowledge and bridge gaps in understanding the therapeutic potential of Psidium guajava leaves, providing valuable insights to promote their sustainable utilization as natural remedies across diverse fields. By synthesizing research findings and exploring potential applications, this review contributes to the advancement of natural product research and underscores the importance of harnessing botanical resources for therapeutic purposes in a sustainable manner. Moreover, it highlights the significance of interdisciplinary approaches in understanding and utilizing plant-based medicines effectively, paving the way for the development of novel therapeutic interventions and the promotion of holistic healthcare practices. This review aims to integrate existing knowledge and bridge gaps in understanding the therapeutic potential of Psidium guajava leaves, providing a comprehensive understanding of their therapeutic potential and fostering further research in this area.

Key words: Traditional medicine, Pharmacological properties, sustainable utilization, natural remedies, interdisciplinary approaches, holistic healthcare practices

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Abstract ID - 163

Kundur *(Boswellia serrata)* in the management of inflammatory disorders: A comprehensive review

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Boswellia serrata is commonly known as *Kundur* in the Unani system of medicine and Indian frankincense in English. Its resin has been used for centuries in Unani system of medicine for its anti-inflammatory and analgesic properties. Its extract has been primarily studied for potential therapeutic effects, particularly in the treatment of inflammatory conditions such as arthritis and asthma. This review aims to reveal information about *Kundur* in inflammatory disorders and highlight the areas of research that have been carried out. Data were gathered from ethnobotanical books, Unani textbooks, scientific journals, and databases such as PubMed, and Google Scholar. Search terms such as '*Boswellia serrata',* 'Indian frankincense', '*Kundur'* combined with 'Anti-inflammatory' were used for articles published from 2013 to 2023. A total of 32 articles were filtered and scrutinized. *Kundur* belongs to the 'Burseraceae' family with hot and dry temperament. It contains bioactive compounds known as boswellic acids, including *β*-boswellic acid, 11-keto-*β*-boswellic acid, acetyl-*β*-boswellic acid, and acetyl-11-keto-*β*-boswellic acid. These compounds are believed to possess anti-inflammatory and anti-arthritic properties. Boswellic acids inhibit the activity of enzymes involved in the inflammatory process, such as 5-lipoxygenase and leukotriene synthetase. In addition to its anti-inflammatory properties, *Kundur* extract may also have analgesic (pain-relieving) effects. By reducing inflammation and modulating pain pathways in the body, it may help alleviate pain associated with inflammatory conditions. *Kundur* extract is available in various pharmaceutical preparations, including capsules, tablets, creams, and ointments. These formulations may be standardized to contain specific concentrations of boswellic acids to ensure consistent potency and efficacy. Several clinical studies have evaluated the efficacy of *Boswellia serrata* extract in the treatment of conditions such as osteoarthritis, rheumatoid arthritis, asthma, and inflammatory bowel disease. Overall, *Kundur* shows promise as a natural remedy for inflammatory conditions. Further research may help elucidate its potential therapeutic benefits and mechanisms of action.

Keywords: Anti-inflammatory, *Boswellia serrata*, Indian frankincense, *Kundur*

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Abstract ID - 164

Assessment of Phytochemical Content, and *in-vitro* Antioxidant and Anti-inflammatory Activity of an Arishta Formula

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Ayurveda has demonstrated considerable potential in both preventing and treating various diseases. Its pharmacopeia includes a broad array of medications, including Arishta. Arishta is recognized for its distinct therapeutic properties, which includes enhanced pharmacological activities, better extraction of bioactive compounds from herbal ingredients, storage stability, and increased efficacy of dosage forms, thereby contributing to improved health outcomes. However, there has been limited scientific research systematically evaluating its pharmacological activities. This study was aimed to assess the antioxidant activity and anti-inflammatory activity of an Arishta formula using *in-vitro* models. Its phenolic and flavonoid contents and the antioxidant activity were determined using the Folin-Ciocalteu method (total phenolic content; TPC), Aluminum Chloride Method (total flavonoid content; TFC), 2,2-azino-bis-3-ethylbenzthiazoline-6-sulphonic acid (ABTS) and the 1,1-diphenyl-2-picrylhydrazyl (DPPH) assays respectively. Anti-inflammatory activity was assessed using the human red blood cell membrane stabilization (HRBC) assay and protein denaturation by egg albumin assay. TPC and TFC were 34.84±0.09 mg GAE/g and 3.62±0.44 mg QE/g. The DPPH assay exhibited the highest radical scavenging activity of 25.63±0.31% ($p<0.05$) and ABTS assay exhibited the highest inhibition of 48.11±1.02% ($p<0.05$) at 1mg/ml. The anti-inflammatory activity was recorded as 75.51±0.23 and 44.93±0.75 at the highest inhibition percentage at 1mg/ml for egg albumin assay ($p>0.05$) and HRBC assay ($p<0.05$) respectively. The IC_{50} value was found to be 0.08±0.05 mg/ml for the protein denaturation assay. In summary, this study emphasizes the potential of an Arishta formulation in contributing to improved health outcomes through the distinct bioactive properties such as antioxidant and anti-inflammatory activity. Further research will be conducted in a laboratory setting to determine the mechanism of action of this Arista formula.

Keywords: Anti-inflammatory activity, Antioxidant activity, Arishta, *in-vitro,* Traditional medicine

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Abstract ID - 182

Solid state characterization of Lotus seed starches modified by pregelatinization and acetylation: potential as excipients

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Starch is widely used as a pharmaceutical excipient and its use is enhanced by several modification methods. Lotus (*Nelumbo nucifera*) seed contains over ~60% (dry basis) of starch content. This study aimed to characterize the physicochemical profiles of pregelatinized and acetylated lotus seed starches compared to their native starch. Starch was extracted by mixing powdered lotus seeds with distilled water, filtering, and drying at 40 °C. Extracted starch was modified via pregelatinization and acetylation. The physicochemical parameters such as pH, particle size, bulk, tapped and true densities, Hausner's ratio, Carr's index, angle of repose, hydration capacity, moisture sorption capacity, swelling power, clarity and viscosity of both modified and native starches were evaluated. Moreover, their IR spectra, X-ray diffraction (XRD) patterns, and scanning electron microscopic (SEM) images were analyzed. Data were compared by performing an independent t-test. Pregelatinized lotus starch provided peaks in the IR spectrum similar to native lotus starch while acetylated lotus starch exhibited C=O vibration around 1738 cm^{-1} indicating incorporation of acetyl groups. The changes in the XRD pattern were observed only in pregelatinized lotus starch. No morphological changes were observed in granules of acetylated lotus starch in SEM images while pregelatinized lotus starch granules exhibited a larger flat sheet appearance. All the physicochemical parameters of pregelatinized lotus starch reported significant differences compared to native lotus starch ($p<0.05$) while acetylated lotus starch reported significant differences in pH, bulk density, Hausner's ratio, Carr's index, angle of repose, moisture sorption capacity, clarity and turbidity compared to native lotus starch ($p<0.05$). Both pregelatinized and acetylated lotus starch reported high swelling power compared to native lotus starch. These findings provide a basis for the further development of modified lotus starches as excipients in pharmaceutical formulations.

Keywords: Acetylation, Excipients, Lotus seed, Pregelatinization, Starch

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Abstract ID - 188

Preliminary phytochemical screening of *Cyperus iria* leaves and roots

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Cyperus iria, also known as "rice flatsedge," which belongs to the family *Cyperaceae*, is one of the common weeds that grow in paddy fields mainly in Asian countries. Although this weed is considered troublesome in the agricultural field, *Cyperus iria* is used as an astringent, stimulant and as a tonic in Ayurvedic medicine for conditions such as amenorrhea, rheumatism. It is also used to regulate menstruation. The rhizomes of the plant are used as a diuretic. Even though a number of research have been conducted on the pharmacological properties of the family *Cyperaceae*, only a few have been carried out regarding *Cyperus iria*. Hence, this study was mainly focused on the screening of phytochemicals of the *Cyperus iria* leaves and roots. A qualitative phytochemical analysis was performed for aqueous, methanolic and *n*-hexane extracts of *Cyperus iria* leaves and roots separately. Dragondroff's test, Shinoda's test, Ferric Chloride test, Salkowski test, Keller-Killani test and Liebermann-Burchard tests were performed for alkaloids, flavonoids, phenols, steroids, glycosides and terpenoids respectively. Comparatively, methanolic extracts contained higher amounts of phytochemicals. It confirmed the presence of flavonoids, phenols, tannins, glycosides and alkaloids in both roots and leaves while terpenoids were present only in leaves. Out of all tested phytochemicals, phenols showed the highest color intensity. Steroids were not detected in both leaves and roots. A thin layer chromatography (TLC) profile was developed for methanolic extracts and the fingerprint patterns showed a difference between roots and leaves. Overall results provided evidence that *Cyperus iria* is a potent source for some medicinally important phytochemicals. The studies on *Cyperus iria* should be further extended for the isolation and identification of bioactive compounds of medicinal value.

Key words: *Cyperus iria,* Phytochemicals, Thin layer chromatography

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Abstract ID - 206

Biochemical profile and in-vitro biological activities of extracts from *Halophyte Halosarcia indica*

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Halosarcia indica, a member of the Amaranthaceae family, is a halophyte showcasing distinctive adaptations to saline environments. Halophytes, including *Halosarcia indica*, typically contain bioactive compounds known for their antioxidant and anti-inflammatory properties. This study mainly focused on the determination of bioactivities of methanol, DCM (dichloromethane), and hexane fractions of *Halosarcia indica.* The antioxidant activity of these fractions was examined using a 2,2-diphenyl-1-1-picrylhydrazyl (DPPH) assay, 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid (ABTS) assay and, ferric reducing power (FRAP) assay using butylated hydroxytoluene (BHT) as positive control. The total phenolic content (TPC) was assessed using the Folin-Ciocalteau method, while the determination of total flavonoid content (TFC) was conducted through the aluminum chloride assay. Additionally, the examination of total tannin content (TTC) was carried out using the vanillin/HCl method. Anti-inflammatory activity was evaluated by the human red blood cell stabilization method (HRBC) compared with aspirin as a positive control. Methanolic extract of the *Halosarcia indica* demonstrated higher TPC (169.66±5.09 mg GAE/g), TFC (206.84±2.67 mg CE/g), and TTC (192.74±1.68 mg CE/g). Similarly, the methanolic fraction showed the highest radical scavenging activity with IC_{50}, 63.98±1.12 µg mL^{-1} compared with BHT (IC_{50}, 21.01±0.52) according to DPPH assay, and IC_{50}, 76.24±1.40 µg mL^{-1} compared with BHT (IC_{50}, 23.05±0.51) according to ABTS assay. Further, the methanolic fraction presented the highest anti-inflammatory activity with 66.35±0.36 µg mL^{-1} IC_{50}, a value compared with aspirin (IC_{50}, 41.66±0.55). ANOVA was used to detect significant differences ($p < 0.05$) among means, followed by Tukey's test for further comparison. Lipids and free fatty acids were transformed into fatty acid methyl esters (FAME) for analysis via (GC-MS) to determine fatty acid composition. According to the GC-MS results, pentadecanoic acid methyl ester, and methyl palmitate were identified with different retention times. The study concludes that *Halosarcia indica* methanolic fraction is rich in anti-inflammatory and antioxidant agents, suggesting its potential applications in cosmetics and pharmaceutical industries.

Keywords: Antioxidants, Anti-inflammatory, Biochemical profile, Fatty acids, Halophytes

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Abstract ID - 207

Comparative microbiological and physico-chemical study on *Dhatri churna* available in the local market – towards standardization

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Dhatri churna is one of the commonly used Ayurveda preparations which acts as a laxative, and cleansing agent of the digestive tract and blood circulatory system. Although it is available under several commercial brands, quality and therapeutic efficacy are not certified. Therefore, this research was conducted to compare the microbial and physicochemical parameters of different commercial brands available in the local market to assure their quality. Samples prepared by four manufacturers were collected from the market. Total bacterial count and total fungal count were determined in all samples and the presence of specific pathogenic bacteria as *Escherichia coli*, *Salmonella* sp., and *Shigella* sp. was tested. The physicochemical parameters such as moisture content, extractable matter, total ash content, acid insoluble ash content, bulk density, tapped density, and pH were determined following the WHO guidelines. The total bacterial count was within the limit whereas the total fungal count was higher than the standard parameters in all samples tested. The tested specific pathogenic bacteria were not detected in any sample. Significant differences were observed among samples tested for moisture content (4.65-7.09%), total ash (29.7-47.8 mg g^{-1}), acid-insoluble ash (2.81-32.02 mg g^{-1}), and water-extractable matter (599.11-728.27 mg g^{-1}) while slight differences were detected for ethanol extractable matter and pH. Differences were also observed for bulk density and tapped density of the samples as well. The flow property of all samples considered was poor. TLC fingerprint profiles were obtained for all samples with slight intensity differences in a few spots among the samples analyzed. The study concluded the standardization and quality control of this preparation is a timely requirement.

Keywords: Dhatri churna, Microbiology, Physicochemical parameters, TLC, Quality assurance

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Abstract ID - 214

Role of Ayurvedic and Traditional Management on Avabhahuka (frozen shoulder): A case study

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Avabahuka is a disease that affects the shoulder joint (Amsha Sandhi) manifested by vitiated Vata Dosha localized in the shoulder with functional deficit. The pain (Shoola) and stiffness (Sthabdhata) of the shoulder joint, with the functional deficit (Bahupraspanditahara)greatly impacts the quality of life of the patients suffering from Avabahuka disease. The study has been focused on managing the Avabahuka disease based on the treatment principles mentioned in Ayurveda and Traditional medicine. A fifty-one-year-old female patient diagnosed as Avabhahuka; presented with pain (Shoola), stiffness (Stabdhata), and restricted movement (Bahupraspanditahara) in the right shoulder joint for 5 months was reported to the I.P.D, Department of Kayachikitsa, National Ayurveda Hospital, Rajagiriya was selected to the study. The treatment period was fourteen days. During the treatment, the patient was advised to take 120 ml of Nirgundhi Lashunam Shigru Kashaya, 500 mg Chandrapraba Vati two times per day after meals as internal treatments along with Kubjaprasarani Taila, Dashamoola Nadi Sweda and paste of Devadara Paththuwa were administered as external treatments for initial consecutive seven days. Shad Bindu Tailaya Nasya followed by Abyanga and Sweda with Nikadi Pottani carried out for seven days.120 ml of Rasna Vishwa Vidangani Kashaya ,250 mg of Tryodashanga Guggulu, 250 mg of Rasnadi Guggulu, Ashwagandha Gritha 5ml morning and evening after foods as internal treatments followed by Virechana with Tripala Kashaya 120 ml along with Eranda Taila 30 ml. The range of movements improved gradually from 700- 1100 for flexion,150 - 400 for extension and 700 to 1600, abduction 700 to 1500, internal rotation 200 - 700 and external rotation 200 to 700.VAS score for pain in the right shoulder was 7 before treatment, which decreased gradually to 2 after completion of the treatment. In view of the above; it can be concluded that the therapeutic protocol is effective for the disease Avabahuka successfully and further clinical studies with larger samples are needed to generalize its findings.

Keywords: Avabahuka, Ayurveda, Nasya, Traditional, Virechana

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Abstract ID - 216

Evidence Based Management of *Janu Sandhigatavata* through *Kolakulaththadi Upanaha Sweda*: Case Series

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Sandhigatavata is a joint degenerative condition that affects almost 16% to 23% of the global population. According to Ayurveda, it is characterized as a *Vata vyadhi* presenting symptoms such as *Sandhi Shula* (joint pain), *Sandhi Shotha* (joint swelling), *Vatapurna Druti sparsha* (joint crepitation) and *Prasarana Akunchana Vedana* (pain during extension and flexion). Ayurveda recommends a combination of different treatment modalities including *Snehana*, *Swedana, Upanaha, Agni karma, Bandhana* and *Mardana* for managing *Sandhigatavata*. This study aims to assess the effectiveness of *Upanaha Sweda* treatment for *Janu Sandhigatavata*. The five patients aged between 40 – 70 years of either sex presented to the OPD of the National Ayurveda Hospital were selected by adopting purposive sampling method for the study and data was collected by using relevant Proforma. The *Upanaha Sweda* remains 12 hours per day for two weeks. It consists of *Kola* (*Zizyphus jujube*), *Kulaththa* (*Dolichos biflorus*), *Suradaru* (*Cedus deadara*), *Rasna* (*Pluchea lanceolate*), *Masha* (*Vigna mungo*), *Atasi* (*Linum usitatissimum*), *Tila* (*Ricinus communicus*), *Kushta* (*Saussurea lappa*), *Vacha* (*Acorus calamus*), *Shatahwa* (*Anethum sowa*) and *Yava* (*Hordeum vulgare*). Assessment of the condition was done based on the detailed Performa adopting and patients were assessed before and after treatments. For obtaining results, the Wilcoxon signed rank test was applied to data. After 14 days of treatment, it was observed that 100% relief on swelling and 90% relief on pain during extension and flexion and Crepitus was observed. However larger sample sizes and further research is needed to validate these findings.

Keywords: *Kolakulathadi, Sandhigatavata, Upanaha*

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Abstract ID - 217

Role of *Vyoshadi Guggulu* in *Medo Dushti* WSR to Dyslipidemia - A case study

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Dyslipidemia is one such lifestyle disorder which is a major risk factor of cardiovascular and metabolic disorders. It can correlate with *Medho Dushti* in Ayurveda viewpoint. Currently, natural and synthetic hypolipidemic drugs are available in the market which have some proven side effects. Hence, the world is looking towards Ayurveda therapeutic measures on this health issue. The study has been focused on identifying the functions of *Vyoshadi Guggulu*, herbal formulae on *Medho Dushti*. Cardinal features of the *Medho Dushti* are excessive thirst, hunger, sweating, fatigue, unpleasant smell of the body and difficulty in sexual activities. Present case study was a 64-year-old female patient who visited National Ayurveda Hospital Borella, complaining of excessive sweating, excessive thirsty, excessive hungry, and fatigue associated with drowsiness and heaviness of the body for three months. The patient has been diagnosed as *Medho Dushti* by Ayurvedic and modern parameters. The treatment plan was prescribed, based with *Vyoshadi Guggulu*. The dosage of 500 mg three times a day with lukewarm water for a period of six weeks. The patient was advised to follow wholesome *(Pathya)* and unwholesome *(Apathya)* during and after the treatment. The follow up was made on every 14 days for two and half months at the clinic. The patient was assessed on clinical symptoms along with lipid profile before and after the treatment and showed remarkable reduction of clinical features as well as lipid values as biochemical parameters (reduced by; total cholesterol 6.15%, triglycerides 15%, HDL 2%, LDL 6.1%, VLDL 15%). In view of the above it can be concluded that *Vyoshadi Guggulu* played a major role on-*Medho Dushti*.

Keywords: Ayurveda, Lipid profile, *Medho Dushti, Vyoshadi Guggulu*

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Abstract ID - 219

Determination of Antimicrobial Potential in *Denimba Debatu Kaṣāya*

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"Denimba debatu kaṣāya" is known as a renowned *anupāna kaṣāya* of *Sīthārama vatī* included in *Vatikaprakaraṇaya*. In the evidence-based practice of *Denimba debatu kaṣāya,* it is also known as an effective traditional medicine in the management of infectious diseases. Therefore, the purpose of this study was to determine the antimicrobial potential of *Denimba debatu kaṣāya* (with and without *prativāpa dravya)* against *Staphylococcus aureus* (ATCC™ 25923), *Escherichia coli* (ATCC™ 25922) and clinical isolate of the fungus *Candida albicans* using well diffusion method. *Denimba debatu kaṣāya* was prepared according to the *kwāṭa pariḅāṣā.* Augmentin (100 µg/mL) was used as the positive control of antibacterial assays and itracanazole (100 µg/mL) was used as the positive control of antifungal assay. According to the obtained results, it emphasizes that the *Denimba debatu kaṣāya* samples (with and without *prativāpa dravya)* do not have any inhibition zone ($p > 0.05$) compared to their positive controls *(Staphylococcus aureus* = 27.33±0.24 mm, $p = 0.000$, *Escherichia coli* = 10.33±0.24 mm, $p = 0.000$ and *Candida albicans* = 15.33±0.24 mm, $p = 0.000$). On the other hand, the careful observation of antibacterial assay plates showed that the bacterial growth near the *Denimba debatu kaṣāya* samples related wells are slightly lower than the other areas. This could be due to the lower effectiveness of *Denimba debatu kaṣāya* samples (with and without *prativāpa dravya)* against Gram-positive and Gram-negative bacteria. Hence further research should be done with higher concentrations of *Denimba debatu kaṣāya* with and without *prativāpa* to evaluate the antimicrobial activity.

Keywords: Antimicrobial activity, *Anupāna kaṣāya, Sīthārama vatī, Vatikaprakaraṇaya*

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Abstract ID - 222

Evaluation of physicochemical properties and microbiological quality of *Vidārikandādī chūrna*, a polyherbal *Ayurveda* pediatric preparation

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In *Ayurveda* there are a lot of plant materials which have high nutritional and therapeutic value. The polyherbal formula known as *Vidārikandādī chūrna* consists of three such herbal materials (*Ipomoea mauritiana Jacq. Hordeum valgare Lin.* and *Triticum sestivum Linn.).* It is used to treat underweight children according to *Ayurveda* pediatrics*.* Though the formula composition and therapeutic claims of *Vidārikandādī chūrna* are mentioned in the Ayurveda Authentic text, *Bhava prakasha*, the scientific investigations for its quality and safety evaluation are yet to be documented. This polyherbal formula contains three main ingredients having therapeutic and nutritional values. The current study aimed to check whether this polyherbal drug preparation has met the minimum quality standards mentioned under the WHO guidelines. Further, this work is an attempt to establish the quality parameters for *Vidārikandādī chūrna.* The physicochemical, chromatographic, and microbiological evaluations of the in-house prepared drug were performed as per the WHO guidelines. The physicochemical tests performed in triplicate indicate pH (5.5 - 6.0) water extractable matter (7 - 8%), loss on drying content (11.8%), total ash content (2.96%) and acid insoluble ash (0.24%). Total bacterial count and total yeast and mold count were within the WHO standard limits while specific pathogenic bacteria (*E. coli*, Shigella sp., Salmonella sp.) were not detected in tested samples. A thin layer chromatographic fingerprint profile was developed for the specific drug sample. The results indicate that this drug formulation has no significant quality issues for pediatrics consumption. Further, these findings can be used by manufacturers as a reference for controlling the quality of *Vidārikandādī chūrna* formulation before releasing to the market.

Keywords: *Ayurveda*, Analytical studies, Pediatric, Underweight, *Vidārikandādī chūrna*

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Abstract ID - 223

Evaluating the chemical profile and urease inhibition activity of *Siddhaleapa Asamodagam* Spirit obtained from seeds of *Trachyspermum roxburghianum*

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Trachyspermum roxburghianum, also known as *'Ajwain'* in India and *'Asamodagam'* in Sri Lanka, is a traditional remedy for gastrointestinal disorders, diarrhea, and abdominal pain. The present study aimed to investigate the *in-vitro* urease inhibitory activity and the chemical constituents of *Asamodagam* Spirit obtained from the seeds of *T. roxburghianum.* The *Asamodagam* spirit was prepared using a simple distillation technique, and organic compounds were extracted into hexane. The chemical constituents of *Asamodagam* Spirit were identified and quantified using the GC-MS method. Thymol was identified as the major constituent present in the distillate, and 2-tetracene (1.32%), cyclodecene (1.54%), and E-15-heptadecenal (1.34%) were identified as minor constituents present in the distillate. Since *Asamodagam* spirit is frequently used for gastrointestinal diseases by the Sri Lankan community, all the quality parameters requested for the herbal medicine were tested using various acceptable analytical techniques to examine the quality of the distillate. The present study revealed that the distillate does not contain hazardous heavy metals / metalloids (As, Cd, Pb, and Hg) or pathogenic microorganisms such as *E. coli*, *Salmonella* spp., *Pseudomonas aeruginosa, Staphylococcus aureus,* and complies with the standard parameters required for the safety, efficacy, and potency of herbal medicine. The results of the urease inhibition assay exhibited that *Asamodagam* Spirit is an inhibitor of the urease enzyme with $IC_{50,}$ 0.24±0.01 $mgmL^{-1}$ and it is comparable to the positive control of Thiourea. The lower IC_{50} value obtained for the *Asamodagam* distillate, suggests that the minor compounds present in the distillate increase the urease inhibitory activity, indicating the distillate of *T. roxburghianum* is a potent inhibitor of the urease enzyme. In conclusion, the present study confirms that *Asamodagam* Spirit is an effective treatment or specific medication to cure gastrointestinal disorders as a dietary intervention.

Keywords: *Asamodagam*, Anti-urease assay, Thymol, *Trachyspermum roxburghianum*

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Abstract ID - 224

A clinical study on *Pippali* with *Amurta Choorna* in the management of *Panduroga* (Iron deficiency anemia)

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Panduroga is a *Pitta* predominant disease characterized by reduction of the complexion, strength, unctuousness and *Ojas* in the body. It occurs due to degeneration of *Agni*. *Pandu roga* can be correlated with anemia based on its signs and symptoms. Anemia is a condition of reduction in the hemoglobin or red blood cells concentration of the peripheral blood in relation to age and sex. Iron deficiency anemia is one of the most prevalent types of nutritional disorder in the world. *Pippali* is a medicinal herb which processes *Agnideepana* and *Amapachana* properties. *Bhavaprakasha Samhita* and *Danvantari Nighandu* have recommended *Amurta Choorna* as a treatment of *Panduroga. Amurta* is a medicinal herb which processes *Pittahara, Rasayana, Deepana, Balya* and *Hrdya* properties. The aim of the study was to evaluate the effect of *Amurta Choorna* in the management of *Panduroga*. A total of 25 patients were selected from National Ayurveda Teaching Hospital *Borella* according to inclusive and exclusive criteria. Either sex of patients having cardinal signs and symptoms of *Panduroga* and Hb% below the normal range were included in this study. Patients were treated with 3 g of fruit of *Pippali* (*Pipper longum*) *Choorna* daily for 5 days and 5 g of dry stem of *Amurta* (*Tinospore cordifoia) Choorna twice a day* for a period of 90 days. The follow up period was 30 days. Therapeutic effect was evaluated through symptomatic relief of the patients and observed the General blood picture, red blood cell count and hemoglobin percentage. Among total patients, 16 patients (64%) showed marked improvement, 7 patients (28%) showed moderate improvement and 2 patients (8%) showed mild improvement. Statistical analysis of the results shown significant level of reduction in the intensity of all the subjective parameters and red blood cell count with Hemoglobin percentage were increased to normal range in treatment and follow up. This clinical study clearly indicated that, this treatment modality can be prescribed as an effective treatment for *Panduroga*.

Keywords: Iron deficiency anemia, *Panduroga*, *P.longum, T.cordifolia*

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Abstract ID - 225

A computational investigation of the anti-viral potential of phytochemicals isolated from Sri Lankan medicinal plants against dengue virus

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Dengue infection has spread rapidly across regions in the past few decades, resulting in an increased frequency of epidemics. The lack of effective anti-viral treatment has constrained the control of dengue infection. However, many traditional medicinal systems claim plant-based antivirals as effective treatments. Hence, the present study investigated the antiviral potential of phytochemicals isolated from Sri Lankan medicinal plants against the dengue NS-1 protein through a computational and network pharmacology approach. The conserved non-structural dengue virus protein NS1 was selected for this study as it plays a crucial role in viral replication and host interaction. Initially, 120 phytochemicals were selected from the Sri Lankan Plant Database, followed by the identification of 33 bioavailable compounds using the SwissAdme online server. Toxicity analysis with ProTox-2 further narrowed down the selection to 8 phytochemicals. Molecular docking simulations against the dengue NS-1 protein (PDB ID: 7BSC) of the DEN-2 virus strain were performed, revealing 10 compounds with the lowest binding energies, ranging from -8.5 Kcal/mol to -7.5 Kcal/mol. Subsequent analysis focused on the bioavailability and toxicity of these compounds, leading to the selection of 8 phytochemicals for further consideration. Molecular docking analysis using Discovery Studio 2024 Client elucidated the interactions between the selected phytochemicals and the dengue NS-1 protein. Notably, γ-taraxasterol exhibited the lowest binding affinity but demonstrated significant non-bonding interactions with crucial active site residues. Calozeyloxanthone, Alkaloid II, Alkaloid IV, and myoinositol also displayed promising interactions with the NS-1 protein, suggesting their potential as bioactive compounds. Molecular dynamics simulations, conducted using ChimeraX and ISOLDE software, provided insights into the dynamic interactions between the selected phytochemicals and the NS-1 protein over time. In conclusion, this study identifies several phytochemicals from Sri Lankan medicinal plants with potential antiviral activity against dengue NS-1 protein. These findings contribute to the exploration of natural sources for drug discovery and highlight the importance of computational methods in drug development pipelines.

Keywords: Anti-viral, Computational, Dengue

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Abstract ID - 226

Bioassay guided isolation of phytochemicals from shoot extracts of *Suaeda maritima* in Sri Lanka as a source of potential therapeutic agents

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Suaeda maritima also known as "seablite", is an annual herb found in salty, alkaline soil. It has been utilized in traditional folk medicine. The objectives in this study were quantitative investigation of *in vitro* antioxidant and anti-inflammatory activities of shoot parts of *S.maritima* in Sri Lanka and isolation of pure natural compounds while evaluating their antioxidant activities quantitatively. Phytochemicals of finely powdered airdried shoots were extracted into methanol and then sequentially partitioned with hexane, chloroform and 80% methanol. Four dried solvent extraction fractions with a standard antioxidant as (+) control (butylated hydroxy toluene) were subjected to 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2, 2'-azinobis-3-ethylbenzothiazoline-6-sulfonic acid (ABTS) radical scavenging assay. The chloroform fraction had significantly strong antioxidant properties according to DPPH assay (IC_{50} - 0.073 ± 0.003 mg/mL) and ABTS assay (IC_{50} - 0.168 ± 0.009 mg/mL). Human red blood cell membrane stabilization assay was used with a standard anti-inflammatory drug (aspirin) to investigate anti-inflammatory activities and the chloroform fraction showed the highest anti-inflammatory activity among the four fractions (IC_{50} - 0.10 ± 0.01 mg/mL). Therefore, the chloroform fraction was further subjected to an isolation procedure using various chromatographic techniques such as column chromatography, size exclusion chromatography, preparative thin layer chromatography (PTLC) and high-performance liquid chromatography (HPLC). Two pure compounds were isolated with strong antioxidant activities against the DPPH assay (IC_{50} - 0.095 ± 0.002 mg/mL and IC_{50} - 0.059 ± 0.002 mg/mL). In conclusion, the chloroform fraction of *S.maritima* shoot extract exhibited significant antioxidant, anti-inflammatory activities and two bioactive compounds that are responsible for the bioactivity were isolated. Identifications of these two compounds will be done using spectroscopic data such as ^{1}H NMR, ^{13}C NMR, 2D NMR and mass spectroscopic data. These phytochemicals which were isolated, with promising bioactivities could be utilized to develop nutraceuticals.

Keywords: Antioxidant, Chromatography, Isolation, NMR, Pure compounds

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Abstract ID - 234

Phytochemical screening of *Cordia dichotoma* (Boraginaceae) bark extracts using Thin Layer Chromatography (TLC)

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Cordia dichotoma is a traditional medicinal plant in Sri Lanka which is well-known for phytochemicals responsible for its medicinal properties. The study aims to analyze the TLC fingerprint of *C. dichotoma* bark collected from different geological regions of Sri Lanka. This helps to compare phytochemicals present in bark at different geographic localities, which could be used to improve the quality of drugs produced from *C. dichotoma*. Bark samples were collected separately from Yakkala, Nawinna, Alawwa, Haldunmulla, Galgamuwa, and Giradurukotte. Preliminary phytochemical screening was conducted for decoctions. Ethyl acetate and methanol extracts were used for TLC analysis. Nonpolar (toluene: ethyl acetate: formic acid 7:3:0.5) and polar (ethyl acetate: formic acid: acetic acid 40:1:1) mobile systems were further used to detect differences in TLC fingerprints. The preliminary studies showed that tannins, phenolics, terpenoids, and flavonoids are present in aqueous bark extract of *C. dichotoma* collected from all the places. Saponins were not detected in all samples. A substantial increase in the color intensity during phytochemical screening in Galgamuwa sample and intense spots in TLC were observed suggesting the presence of higher levels of alkaloids, tannins, and phenols. All tested samples showed similar chemical profiles in the TLC analysis of methanol and ethyl acetate extracts, indicating the presence of similar chemical constituents in bark samples from different geographical localities. However, ethyl acetate bark extracts from Alawwa and Galgamuwa showed an extra band, indicating the presence of a chemical compound different from that of other samples. Methanolic bark extract from the Alawwa and Hanldunmulla revealed more spots than extracts from other places. It can be concluded that the constituents of the same species from different geographics provide different phytochemical profiles. Consequently, it is imperative to consider the geographic locality, when cultivating medicinal plants to enhance quality and reproducibility of the drug production.

Keywords: Bark, *Cordia dichotoma*, Phytochemical screening, Sri Lanka, TLC fingerprints

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Abstract ID - 235

Determination of antibacterial activity of Coriandrum sativum ethanolic extract on *Escherichia coli* and *Staphylococcus aureus*

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Among the commonly utilized medicinal herbs, seeds of the coriander plant (*Coriandrum sativum*) are among the most preferred to cure infectious diseases due to the proven antimicrobial properties. When considering the disease-causing pathogens, *Escherichia coli* and *Staphylococcus aureus* are widely spread varieties of bacteria causing diarrhea and other digestive and urinary tract disorders and skin and nasopharynx related diseases in humans. The coriander seeds were extracted in two distinct concentrations, 50 mg/ml and 100 mg/ml. The antibacterial activity was then determined by the well diffusion method with the two concentrations of coriander seeds (C. *sativum*) against *E. coli* (ATCC 25922) and *S. aureus* (ATCC 25923). All the findings from the Antibiotic Susceptibility Test (ABST) were documented and subjected to statistical analysis using IBM SPSS Statistics version 21. The ABST involved qualitative testing to ascertain the zones of inhibition against bacterial strains at concentrations of 50 mg/ml and 100 mg/ml. The largest inhibition zones wereobserved against *S. aureus*, measuring 16.47±0.48 mm and 17.67±0.48 mm, respectively.In contrast, inhibition diameters against *E. coli* were recorded as 14.00±0.00 mm and 14.33 ±2.10 mm, respectively. The MIC and MBC value of coriander seed extract against *E. coli* and *S. aureus* was 25 mg/ml and 50 mg/ml. It was concluded that the coriander seeds utilized in this research had antibacterial potential. Therefore, more studies can be done to explore the antibacterial properties of various parts of the coriander plant, including its leaves, stems, and roots, to examine their antibacterial properties.

Keywords: Antibacterial activity, Antibiotic resistance, Minimum bactericidal concentration, Minimum inhibitory concentration, Secondary metabolites

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Abstract ID - 243

Nutritional and phytochemical properties of *Sharbat-e-Tamar Hindi*: An Unani functional beverage

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Tamarindus indica commonly known as Tamarind (*Siyambala* in Sinhala and *Palap puli* in Tamil) is an abundant plant in tropical countries including Sri Lanka. *Sharbat-e-Tamar Hindi* is an Unani compound preparation that can also can be used as a functional beverage. This study has been designed to overview the nutritional properties and analyze the organoleptic and phytochemical properties of *Sharbat-e-Tamar Hindi*. The authentic books in Unani and Scientific resources were used to collect nutritional and medicinal information. Organoleptic and phytochemical analyses were carried out with standard methods. Google Scholar, PubMed, and MEDLINE databases were used to collect research findings. According to Unani medicine, the pulp controls fever and purges the bile. It is also given for sun stroke and inflammatory conditions. *Tamar Hindi* contains more proteins (21.69%) and fiber (3.64%) but less in fat (0.08%) in 100 g of pulp. The phytochemical screening revealed the presence of tannins, phenols, alkaloids, terpenoids, sesquiterpenes and saponins. These collectively contribute to the overall therapeutic actions of *Sharbat-e-Tamar Hindi*. The TLC fingerprint provides a standard identification for *Sharbat-e-Tamar Hindi*. There are 10 spots in wavelengths of 254 nm and 366 nm. The organoleptic evaluation proves that it has a palatable taste and smell. The nutritional values along with research evidence of active principles and therapeutic actions proves its health benefits. The research evidence, phytochemical screening and nutritional values indicate promising health benefits of *Sharbat-e-Tamar Hindi*. Therefore, it can be used as a medicinal syrup as well as a nutritive functional beverage, especially in summer season.

Keywords: Functional food, Nutritional value, Phytochemical screening, Sharbat-e-Tamar Hindi, Tamarind pulp

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Abstract ID - 244

Development and phytochemical analysis of herbal oil pulling formula

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Oral health is a key indicator of an individual's overall health and well-being. The healthiest condition of teeth, gums and the whole oral cavity are included in oral health. Oil pulling is an ancient traditional method using in maintaining of the oral hygiene. This study aims to develop and analyze a new oil pulling formula with coconut oil and cinnamon oil. The formula is made with principles of oil pulling and Unani concept of drug actions in oral hygiene. The organoleptic properties, phytochemical screening and TLC fingerprint of the formula were done according to standard methods. The formula is presented with aromatic smell and no taste in organoleptic evaluation. The phytochemical screening of the product gives positive results for tannins, phenols, flavonoids, terpenoids, alkaloids and steroids. The research evidence reveals anti-microbial and anti- inflammatory effects of the ingredients. The TLC fingerprint gave 13 spots in wave lengths of 254 nm and 366 nm that could be used in identification of the product. Oil pulling is observed to bring improvement in oral hygiene when practiced correctly and regularly. The literature shows medicinal properties of coconut oil and cinnamon oil. Further research with this product will pave the way for the discovery of a novel drug in oral hygiene.

Keywords: Cinnamon oil, Coconut oil, Oil pulling, Oral hygiene, Unani formula

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Abstract ID - 259

Comparative Study on the Effect of *Agraraja Kwatha* and *Tripal Gugul Kwatha* on *Garbhashagata Arbuda* (Uterine Fibroid), A Randomized, Single-Blind, Two-Arm, Clinical Trial- Study Protocol

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Garbhashagata Arbuda (Uterine fibroids) are the most common benign tumors arising from the uterus in reproductive age, resulting in 25% to 50% of women with fibroids undergoing surgery. At least 20 % of women develop fibroids by around age 35, may cause symptoms such as heavy menstrual bleeding, abdominal pain, lower back pain. The condition also impairs women's physical, social, occupational, and psychological well-being. The objective of this study is to clinically evaluate the efficacy and safety of *Agraraja Kwatha* and *Thripal Guggul Kawatha* in the management of *Garbhashagatha Arbuda.* The study is designed for two groups comparatively as a randomized, single blind, two arm clinical study with 49 participants in each group. Participants diagnosed with uterine fibroids who meet the inclusion criteria were enrolled in this study. Ethical review committee approval was obtained by Institute of Indigenous medicine, University of Colombo and approval certificate number is ERC 21/128. A total number of 98 patients were recruited in a randomized (1:1); single-blind method and they are randomly allocated to *Agraraja Kwatha* (group 1) group or *Thripal Gugul Kwatha* (group 2) group. Both groups were treated by 30 ml relevant decoction for 15 days continuously every month with 15 days gap in two cycles up to three months rotation and finally did a period of one month follow-up. Endpoint was calculated from mean uterine fibroid volume dimension ultrasound scan after every treatment rotation and repeated in one-month follow up. Uterine fibroid symptoms and health-related quality of life questionnaire (UFS-QOL) were assessed. Statistical analysis was done using SPSS version 23 parametric and nonparametric statistical tests. Two-tailed with significance determined by reference to the 5% level is used to find out the significant difference with the baseline data. This study helped to determine the efficacy and safety of herbal formula for uterine fibroid patients.

Keywords: *Agraraja Kwatha, Garbhashagatha Arbuda, Tripal Gugul Kwatha,* Uterine fibroids

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Abstract ID - 263

Evaluation of *in-vitro* Anti-cataract property of a Siddha Herbo-mineral formulation "Thettran kuzhambu"

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Cataract is considered to be the leading cause of blindness in developing countries of the world and the principal cause of visual impairment globally. In Siddha literatures, the terminology "*Kan Padalam*" denotes the cataract. Many medicines had been mentioned in siddha literature and one among them is *Thetran kulambu (Tk)* from *Balaramaiah*, *Siddha Maruthuva Nool Thirattu* was taken for the study. *TK* was prepared as per the standard operating procedure and the anti-cataract potential was evaluated. In this study, the goat eye lenses were divided into 4 consisting of five lenses for each group. Group I (control), Group II (disease control), Group III (test group 100 µg/ml of *TK*) and Group IV (test group 200 µg/ml of *TK).* Except normal control group, other lenses were incubated in 55 mM glucose to induce lens opacification. At the end of the incubation period, the lenses were visually evaluated for the development of opacification by placing them on a graph paper and the number of squares clearly visible through the lens was counted as a measure of lens opacity. Also assessed the inhibition of aldose reductase by constituents of *TK* at 100, 200, 300, 400 and 500µg/ml with a sample size (n) of 3. The treatment groups and controls were assessed using either ANOVA followed by Dunnett's multiple comparisons test. Values were found to be statistically significant at a certain threshold of $P \leq 0.05$. Improved visibility was observed in the lens of group III treated with 100 µg of the test drug showed score of 15.8 ± 3.70 ($p<0.05$) and lens of group IV treated with 200 µg showed a significantly higher level of visibility score 26 ± 4.06 ($p<0.05$). Also 500 µg/ml *TK* showed significant inhibition of the aldose reductase enzyme with a maximum inhibition of about 36.77 ± 1.107 % (and the corresponding IC_{50} value is 674.2 ± 29.67 µg /ml. From the results of the present *in-vitro* study, it was concluded that the test drug *TK* possesses convincing anti-cataract property in isolated goat lens preparation in a dose dependent manner.

Keywords: Cataract, Kan padalam, Siddha, Thettran kuzhambu,

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Abstract ID - 266

Ayurveda management of *Sandigata vata* with special reference to Osteoarthritis – A Case Study

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Sandigata vata is vata dominant disease that presents with degenerative changes and inflammation of the joints causing pain and swelling. It is most commonly observed on weight bearing joints and the condition is more painful in mobile joints like knee joints. It has many causes including *dathukshaya* (depletion of fundamental tissues or dhatu), *margavarodha* (*obstruction in natural passage of Vata Dosha*) and *abhighata* (injury or trauma). We hereby report a case of 52 years old female patient presented with complains of pain, tenderness, swelling, restricted movements of both knee and shoulder joints. The patient also presented with other complaints such as excessive sweating, burning sensation of the body and sleep disturbance. Based on clinical examination, the patient was diagnosed as suffering from *sandigata vata*. Kellgren radiological scale was also used to confirm the diagnosis. The treatment plan included *shodhana* (purification therapy) and *shamana* (pacification therapy). External treatment was *thaila abhyanga* (oil massage) using *kubjaprasarani* oil. *Simhasya panchamooli* decoction was given internally using *laghu panchamoola* and *bruhath panchamoola*. *Lunu iguru* decoction was also given. Visual analogue scale for pain, goniometer measurements for movements of the joint, swelling score, Womack scale for assessing ability to perform daily routine work were used to evaluate the efficacy of the treatment. Pain reduced severe to mild and goniometer measurements changed from 60'. Movement of knee joints improved up to 70. There was a significant improvement of the patient.

Keywords: Osteoarthritis, *Panchamoola*, *Sandigatha vata*

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Abstract ID - 268

Triphala Guduchyadi Churna in the management of Sthulya (Obesity)- A case report

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Sthaulya (obesity) is a complex health condition adversely affecting the physical, mental and social wellbeing of an obese person. It affects individuals of all ages and socio-economic groups. It is a threat to the community of both developed and developing countries. WHO has defined obesity as a chronic complex disease characterized by excessive fat deposits that can impair health. In *Charaka Samhita*, *Sthaulya*is explained as having pendulous *Sphik*, *Udara* and *Stana* due to excess deposition of *Meda* and *Mamsa* (adipose and muscle tissue). The credible scientific evidence on the effective management of obesity is a timely need. Hence, this case study reports the successful management of an obese patient with Ayurveda medication. A 39-year-old Muslim woman presented to the OPD (L-5078), National Ayurveda Hospital, Rajagiriya, with a complaint of an obese body and gradual weight gain for 2 years. She was subjected to clinical examination and laboratory investigations to rule out underlying diseases. After confirming that she was free from any occult disease based on the normal laboratory results, she was administered *Triphala guduchyadi churna*, 6 g twice daily with bee honey for a period of 8 weeks. Her initial and final clinical findings showed a marked reduction of her body weight by 7 kg from 76 kg (BT, BMI=30.8 kgm^{-2}) to 69 kg (AT, BMI=28 kgm^{-2}), waist hip ratio 0.01 from (BT-0.981) to (AT-0.971), the serum cholesterol 6 mg/dl from (BT-216 mg/dl) to (AT- 210 mg/dl), LDL cholesterol 5.2 mg/dl from (BT- 142.6 mg/dl) to (AT-137.4 mg/dl), FBS 12 mg/dl from (BT-120 mg/dl) to (AT-108 mg/dl), SGOT 20U/L from (BT-32U/L) to (AT-12U/L), and SGPT 10U/L from (BT-37U/L) to (AT-27U/L). The results substantiate the effectiveness of *Triphala guduchyadi* churna in the management of *Sthaulya.*

Key Words: Ayurveda, Obesity, Samhita, Sthaulya, Triphala guduchyadi,

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Abstract ID - 270

Ayurveda approach to *Dashamooladee gritha* in the management of *Janu sandigata vata* w.s.r. to knee joint osteoarthritis – a review

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Janu Sandigata Vata (JSV), is a disease that correlates with knee joint osteoarthritis (KOA) which is caused by *Vata dosha*. According to epidemiological findings, insufficient management of osteoarthritis (OA) culminates in the development of deformities, exacerbating its global impact over time. Conventional management of OA through allopathic approaches is limited by medication-associated side effects and aftereffects, necessitating the exploration of alternative therapeutic avenues. Ayurveda, an ancient system of medicine, offers promising modalities for OA treatment, notably *Dashamooladee Gri*tha, an herbal formulation detailed in *Charaka Samhita*. This study aims to assess the pharmacodynamics and pharmacokinetic potential of *Dashamooladee Gritha* in JSV management. The data was gathered from authentic *Ayurvedic* texts, research articles, journals, and web sources. Analysis of its constituents revealed a synergistic alignment with *Vata Shamaka* action, characterized by proportions including 42% *Ushna Veerya*, 70% *Madura Rasa*, 46% *Madura Vipaka*, 37.5% *Guru*, 42% *Snigda Guna*, and 84% *Vata Dosha Shamaka* properties. Furthermore, *Dashamooladee Gritha* exhibits a spectrum of pharmacological attributes, including anti-inflammatory, antioxidant, analgesic, and cytoprotective effects. Considering the compositional constituents demarcated above, *Dashamooladee Gritha* shows notable pharmacodynamics and pharmacokinetic attributes pertinent to the effective management of JSV.

Keywords: *Dashamooladee Gritha, Janu Sandigata Vata*, Pharmacodynamics, Pharmacokinetic

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Abstract ID - 277

Effect of Ayurveda treatment regime for *Gridhrasi*: A case study

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Gridhrasi is a pain-related condition classified as one of the eighty forms of *'Nanathmaja Vata vyadhi'* in Ayurveda*. Gridhrasi s*igns and symptoms are similar to sciatica in modern medicine terms*.* The incidence rate of *Gridhrasi* (sciatica) is quite significant as more than three-quarters of the world's population are affected by the disease. The word *Gridhrasi* suggests the abnormal gait of patient similar to vulture. It affects the ambulatory function of the *Gridhrasi Nadi* (Sciatic nerve). It is characterized by the onset of *Ruja* (pain), *Toda* (pricking), and *Stambha* (stiffness), initially in *Sphika* (gluteal region) and then radiating distally to *Kati-Prishtha* (low back), *Janu* (knee), *Jangha* (thigh) till *Pada* (feet). The study has been focused on managing *Gridhrasi* based on the treatment principles mentioned in *Ayurveda.* A 34-year-old female patient presented to the Outpatient Department of the National Ayurveda Hospital, Borella, with complaints of pain (*Ruja*), stiffness (*Stambha*), and heaviness (*Gaurava*) in the lower back and both legs for the past six months. The patient was diagnosed as *Gridhrasi. Sinhasya Danthee kashaya* was given internally *and Sahachara* oil *Kati pichu* was *applied externally* for *14 days. Before treatment,* middle of the treatment (7th day) and at the end of treatment (14th day) an assessment was done. After the 14 days treatment, it has been observed that 80% relief on reduction of pain (*Ruja*) in the lower back region, 70% improvement in the movement of the left hip joint (*stabdhata),* 80% improvement in movement of the right hip joint (*stabdhata)*, 85% relief of the heaviness of the left leg (*Gaurawa*) and 90% relief of the heaviness of the right leg (*Gaurawa*) were found. Based on the above finding, it can be concluded that this treatment protocol is effective for *Gridhrasi*.

Keywords: Ayurveda, Gridhrasi, Sahachara, Sciatica, Sinhasyadanthee

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Abstract ID - 278

Comparative quality assessment of different market samples of a Sri Lankan Traditional medicine '*Desandun Kalka'*; towards standardization

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Desandun Kalka (DK) is an immune booster prescribed to infants. It is also used to treat skin diseases called '*Rathagaya'* in Sri Lanka. Special hygienic methods are used to prepare it. Further, it is essential to maintain uniform quality for beneficial therapeutic use. Though several manufacturing institutions produce DK, general standard specifications for DK have not been established yet. The lack of standardized specifications for DK across manufacturing institutions indeed poses significant challenges. Without established standards, consistency in quality and efficacy becomes difficult to maintain. This variability can indeed impact the reproducibility, efficacy and safety of the drug and, consequently, the health outcomes of infants relying on it. A comparative study on DK has not been conducted in Sri Lanka. Hence, the present study was designed to comparatively evaluate the quality of six different brands of DK that are available in the local market. All the purchased brands were assessed for physico-chemical parameters such as loss on drying, extractable matter (ethanol and water), total ash, and pH. In addition, microbiological analysis as total bacterial count, total fungal count, and specific pathogenic bacteria; *Escherichia coli, Salmonella* sp., and *Shigella* sp. were done following WHO guidelines. The loss on drying content ranges from 39.14±0.05 to 54.31±0.74 and the pH range from 3.14±0.02 to 4.04±0.02. Significant differences were noticed for total ash content, ethanol extractable matter, and water-extractable matter, and the ranges as, 5.79±0.53-30.87±0.15, 8.01±0.54–21.99±0.68 and 12.22±0.25–34.52±0.54 respectively. Similarities as well as differences were detected within the TLC profiles of tested samples. Total bacterial count was within the standard limit whereas the total fungal count was above the standard parameters in all samples tested. None of the specific pathogenic bacteria were detected in any sample. The results revealed that there was a considerable variation in the physico-chemical parameters and TLC profiles of all brands. The present study concluded that it is necessary to develop standardization specifications for *Desandun Kalka.*

Keywords: Desandun Kalka, Physico-chemical, Microbiology, Standardization, TLC

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Abstract ID - 285

A critical review of poly herbal mineral formula "suranvidura pathya panguwa" for cancer (arbuda) treatment

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Cancer is one of the most dreadful diseases which is characterized by abnormal cell growth with the potential to invade or spread to the other parts of the body. According to Ayurveda, Arbuda is a Tridoshaja disease with the characteristic features of round, firm, mildly painful, large, deep rooted, slowly developing, non-suppurating swollen fleshy mass. One can correlate Arbuda with the modern concept of cancer as the characteristics and the etiopathogenesis of both show similarities. Suranvidura Pathya Panguwa is a traditional polyherbo-mineral formula that uses in cancer management in BMARI, Nawinna, which shows considerable prognosis in enhancing the quality of life of cancer patients. This review was focused on finding out the effectiveness of Suranvidura Pathya Panguwa for cancer treatment. The review was conducted by considering PanchaPadartha and Karma related to the Ayurvedic concepts, as well as the pharmacological actions related to the modern science of each ingredient of Suranvidura Pathya Panguwa, using scientific research. By review data analysis, we found that the majority of individual ingredients have the prominent Rasa as Katu showing 74.19%, Prominent Guna as Laghu in 64.51%, Prominent Virya as UshnaVirya in 77.41% and Vipaka as Katu denoting 64.51%. All together it is mimicking that the formula comprises of Kapha and VataShamakaGuna along with properties of Amadoshahara and considering pharmacological actions, most of them show anti-cancer and immune modulatory actions. The exploration throughout this study may be useful in the future for cancer management.

Keywords: Suranvidura, Cancer, Arbuda, PanchaPadartha

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Preventative and curative measures of health issues

Abstract ID - 14

Determination of bioactive compounds and antioxidant capacity of selected herbal decoctions

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The majority of the world population adopts herbal medicines owing to their health benefits together with therapeutic ability over allopathic medicine and synthetic pharmaceuticals, which exhibit side effects from prolonged use and overdosage. The popularity of herbal medicines further intensified during the COVID-19 pandemic due to their immediate disease curative, and preventive abilities. Herbal medicines exhibit antioxidant activities, and antibacterial properties, driven by excellent chemical compositions giving a synergistic effect to control a broad range of diseases and deficiencies. However, herbal decoctions have not been distinguished based on their efficacy in treating communicable and non-communicable diseases. This study aims to distinguish the potential pharmacological effect of commonly used herbal decoctions for specific diseases. *Thripala churnaya* (TC)*, Sethsuwa churnaya* (SC), *Kshaya* (KS), *Biogen moringa capsule* (MC), *Fast shape-up decoction* (FS), and *Pranajeewa sarakku* (PS) were used to conduct phytochemical screening and anti-microbial assays. The study revealed the highest total phenolic content (TPC)135 ±5 mg gallic acid equivalent (GAE) g^{-1} dry weight (DW), total flavonoid content (TFC) 89±2 mg rutin equivalent (RE) g^{-1} DW, total antioxidant capacity (TAC) 387 ± 3 mg TE g^{-1} DW was reported from TC while the lowest TAC was reported from MC. With regards to antibiotic activity, while TC reported the highest activity against *Pseudomonas* sp., MC reported the highest activity against *Streptomyces* sp., MC and TC reported the highest activity against *Staphylococcus* spp. Results suggested that the decoctions have promising antibacterial activities against tested species. However, the standard residual limit for phytochemical content availability of medication is not recognized so far for the treatment of a particular disease. Consequently, these decoctions cannot be recommended for stand-alone use. Future directions should determine the disease specificity of each decoction considering the synergistic effect of individual herbal products. Nevertheless, individual effects of plants are difficult to identify.

Keywords: antibacterial activity, antioxidant activity, bioactive compounds, herbal decoctions, synergistic effect

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Abstract ID - 16

Evaluation of anti-inflammatory potential using 'HRBC' membrane stabilization assay on aqueous and methanol extracts of an Unani polyherbal mouthwash

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Anti-inflammatory agents inhibit the action of cyclooxygenase enzymes, which are responsible for converting arachidonic acid to prostaglandins. The Unani polyherbal mouthwash (UPM) has been extensively used in the Unani system of medicine and is claimed to have anti-periodontopathic effects. However, there is a lack of scientific evidence that UPM has similar characteristics. Therefore, the present study aimed to evaluate the *in vitro* anti-inflammatory activity of the UPM using the human red blood cell (HRBC) membrane stabilization method. The extracts of the UPM were obtained. Fresh human blood (5 mL) was collected and centrifuged at 3000 rpm, 4^0C for 30 minutes. Then it was washed three times with an equal volume of normal saline. The volume of blood was measured and re-constituted as 10 % v/v suspension with normal saline. Different concentrations (1000, 500, 250, 125, 62.5, and 31.25) of extracts, reference samples, and control were separately mixed with 1 mL of saline and 100 µL of HRBC suspension. Aspirin was used as a standard drug. All the centrifuge tubes containing the reaction mixture were incubated in a water bath at 56 ^{0}C for 30 minutes and at the end of incubation the tubes were cooled under running tap water. Then the reaction mixture was centrifuged at 3000 rpm for 15 mins and the absorbance of the supernatants was taken at 560 nm. The experiment was performed in triplicates. The HRBC assay showed that the IC_{50} values of both extracts of the UPM were not significantly different ($p < 0.05$) with the percentage stabilization of the standard aspirin, and the results were aspirin 7.27±0.20 µg/mL, aqueous extract 8.15±0.04 µg/mL, and methanol extract 7.33±0.97 µg/mL. Therefore, the study suggests that UPM possesses anti-inflammatory potential.

Keywords: Anti-inflammatory, Human red blood cell, Unani polyherbal mouthwash

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Abstract ID - 47

Study of *Venpoosani* (*Benincasa hispida* (Thunb.) Cogn.) mature fruit pulp extract on *Vellai saaithal*

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Vellai saaithal in Siddha medicine presents a clinical picture similar to leucorrhoea. This is a common gynaecological disease among females of reproductive age, regardless of social status. According to the World Health Organization, 75% of women around the world have experienced it once in their lifetime and a high prevalence of vaginal discharge has been observed in Sri Lanka as well. This study was carried out to identify the effectiveness of *Venpoosani* (*Benincasa hispida*) mature fruit pulp extract with the most effective dose of *Vellai saaithal.* Further, the study presents a cost-effective, efficacious, easily available, and easy to prepare medicine, instead of Siddha polyherbal formula of *Venpoosani lehiyam* in *Ayurveda* called *Kushmanda rasayana which* is commonly used in Sri Lanka for leucorrhoea. It has more than 15 ingredients included with *Venpoosani* fruit extract, as it is comparatively expensive. This study was conducted *in* Girls' hostels of the Trincomalee Campus, Eastern University, Sri Lanka from February to April 2023. Thirty unmarried students (n = 30) were randomly selected from the 206 respondents, with the diagnosis of '*Vellai saaithal*' by using a self-administered online questionnaire based on the inclusive and exclusive criteria with informed consent. Three different doses of 10 mL, 15 mL, and 20 mL of *B. hispida* mature fruit pulp extract was given internally for 48 days. Results showed a significant improvement which was 59% effectiveness on '*Vellai saaithal*' with 15 mL of *Venpoosani* mature fruit pulp extract, which had a P value of 0.02. 10 mL and 20 mL extracts showed a P value of 0.19 and 0.03 respectively. The overall study confirmed that the *Venpoosani (B. hispida)* mature fruit pulp extract has excellent effects on '*Vellai saaithal*'. It is comparatively low-cost, and readily available at a convenient dosage. This has provided a golden opportunity for a new combination of drugs to be established for the management of '*Vellai saaithal'.*

Keywords: Benincasa hispida, Leucorrhoea, Siddha medicine, Vellai saaithal, Venpoosani

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Abstract ID - 48

Evaluation of the basic chemical information and sensory properties of some herbal tea products

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Tea is prepared by *Camellia sinensis* and there is a trend of combining herbal plants (HP) to enhance its medicinal value. The objective was to blend selected HP to proactively address the health concerns: cholesterol-lowering (CL), energy boosting (EB), fat-reducing (FT), and slimming (S) in green and black tea bases. *Zingiber officinale*, *Cinnamomum zeylanicum, Garcinia cambogia*, *Punica granatum*, *Moringa oleifera*, *Murraya koenigii, Aegle marmelos, Trigonella foenum,* and *Mentha piperita* were selected based on their properties, evidenced through a comprehensive literature review. The study was conducted at the Department of Pharmacy, Faculty of Allied Health Sciences, University of Ruhuna. Fresh leaves free from insect/microbial attacks were washed well and dried at 40 ^{0}C in an oven until constant weight. The herbal tea mixtures: CL (*C. Sinensis, M. Oleifera*, *A. marmelos*), EB (*C. Sinensis, P. granatum, M. piperita*), FT (*C. Sinensis, M. koenigii, T. foenum*), and S (*C. Sinensis, Z. officinale*, *C. zeylanicum, G. cambogia*) were prepared in the ratio of 3:1 (tea base: herbal mixture) to maintain efficacy and safety. Each formulation was evaluated for phytochemical screening (PS), particle size, density, sensory evaluation (SE) and GCMS analysis for pesticides. From the qualitative PS, the presence of flavanoids, tannins, carbohydrates, saponins, phenols, alkaloids and glycosides were proven. The particle size and density were 1 mm and 142 gml^{-1} respectively. The SE was performed by an authorized SE team that reported good taste and smell in their perspective. Barely any pesticide residues were found in all tea mixtures against the 25 types of basic pesticides such as malathion, carbofuran, chlorpyifos etc. Overall, the formulated herbal tea products showed favourable results to take as a hot beverage and focusing a post marketing SE. It is in the commercialization stage and planning a clinical trial to prove efficacy of the health effects in humans.

Keywords: Cholesterol lowering, Energy boosting, Fat reducing, Herbal tea and herbal plants, Slimming

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Abstract ID - 51

A conceptual study on water purification methods in Ayurveda

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Ayurveda defines pure water as water, which is devoid of smell, taste, cold, clear and good for the heart and considered wholesome. The World Health Organization (WHO) defines water which is treated with physical methods and chemical methods as purified. Due to the non-purified water, at least 29% of the world's population is at risk of contracting water-borne diseases. Vedic period onwards *Ācārya* have described many methods to purify water that ensure stability and efficacy. This review analyses the different opinions on water purification in Ayurveda and evaluates the efficacy of each of the methods to utilize daily to meet the challenges. The data were collected from Ayurveda authentic texts and treaties and published research on standard websites such as Google Scholar, PubMed, and ScienceDirect etc. Natural purification, mechanical, thermal, herbal, and charcoal were some of the purification methods. Large contamination like mud was purified by filtering through clean cotton clothes by mechanical means. By supplying thermal energy using fuel or sunlight, boiling water destroys microbes. The roots of *Delphinium denudatum*, seeds of *Strychnous potatorum* & flowers of *Mesua ferrea* were some herbs that have anti-toxic action categorized under the herbal method. It was mentioned that charcoal of *Vitex negundo*, *Cassia fistula* etc. are capable of absorbing toxic substances. Evidence showed that charcoal acts as a granular filter medium for removing particulates. Water can be made fragrant by placing aromatic flower powders like *Nymphaea caerulea*, *Michelia champaca* etc. Based on the evidence of the present study, a collective process to cleanse water which includes several of the above methods can be identified to meet the daily challenges. Further, samples of purified water using Ayurveda approaches were compared, and their physical and chemical parameters were analyzed. In conclusion, the present study evaluated the efficacy of water purification methods mentioned in Ayurveda in conjunction with contemporary scientific knowledge.

Keywords: Ayurveda, contamination, water purification methods

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Abstract ID - 78

Potentials of *Balāsahacharādi kashāya* and *Dashāngalēpaya* in the management of *Jānu Sandhigatha vātha* (osteoarthritis of knee joints) - A review

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Ayurveda is a holistic medical system that uses herbal medicines for treatment and prevention of diseases. Osteoarthritis (OA) is a chronic degenerative disease with gradual onset and knee joints are commonly affected. '*Sandhigatha vātha* (*SV*)' in Ayurveda which is mentioned under *vāthaja vyādhi* can be correlated with OA. Knee Osteoarthritis (KOA) has become a leading cause of disability in adults. Treatment modality for *SV* includes both internal and external treatments. Review was conducted to identify special properties of herbal ingredients of *Balāsahacharādi* (*BS*) decoction and *Dashāngalēpaya* (*DL*) poultice in relieving clinical features of *SV* with reference to Ayurveda properties in authentic texts and pharmacological findings in modern research articles. *SV* is due to vitiated *Vātha dōsha* affecting bones and joints (*Asthi sandhi*) causing swelling (*shōtha*) and pain (*shūla*) in flexing, extending joints. *BS* includes eight ingredients like *Sida cordifolia* L., *Barleria prionitis* L. and mentioned in *Sārasankshēpaya*. *DL* is a poly herbal Ayurvedic formulation that includes ten ingredients like *Glycyrrhiza glabra* L., *Pterocarpus santalinus* L. and mentioned in *Vruhath Nigantu Rathnākara*. *DL* powder should be mixed with ghee, heated moderately and poultice should be applied on affected joints in mild warmth to give nourishment. Most ingredients (90%) in these two drug formulae showed *Ushna veerya* (hot potency), an Ayurveda pharmacological property which can reduce pain, swelling, inflammation and modern pharmacological findings disclosed Antioxidant (60%), Anti-inflammatory (70%), Analgesic (50%) properties too. *Ricinus communis* L. of *BS* had revealed potent antioxidant activity which can address chronic pain by reducing oxidative stress and *Albizia lebbeck* L. of *DL* had showed strong analgesic activity possibly due to presence of steroids. These results give an idea about the action of *BS* and *DL* in management of OA and clinical studies will be conducted to find the therapeutic effect and efficacy of these two drugs in the management of KOA.

Keywords: Analgesic property, *Balāsahacharādi*, *Dashāngalēpaya*, Knee osteoarthritis, *Ushna veerya*

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Abstract ID - 81

Investigation of bioactivity of Siddhalepa Ayurvedic Cough Syrup

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Traditional Ayurvedic medicinal formulations offer a safer alternative to conventional cough medicines, which often contain a combination of drugs with harmful side effects on prolonged use. Siddhalepa Ayurvedic Cough Syrup (SACS), Ayur Reg. 02/01/AA/07/066, Department of Ayurveda Sri Lanka is formulated with *Borassus flabellifer, Justicia adhatoda*, *Zingiber officinale, Coriandrum sativum* and *Glycyrrhiza glabra* which are widely used for the treatment of cough in hela wedakama. In this study,the bioavailability, anti-inflammatory, toxicity, and anti-microbial activity were investigated. The *in-silico* Absorption, Distribution, Metabolism, Excretion (ADME) was carried out, which predicts that all the compounds present in the SACS have high bioavailability with bio active score >5. Red blood cells stability assay and brine shrimp (*Artemia salina*) lethality assay were carried out to investigate the anti-inflammatory activity and toxicity of SACS and the results of the anti-inflammatory assay (IC_{50} value 0.48 mg/mL) were statistically significant to that of the standard drug aspirin and the results of the toxicity assay confirmed that SACS is not toxic to brine shrimps even at high doses (3.05×10^5 L) and safety of the SACS was proved for consumption. The antimicrobial activity of the ethyl acetate extract of SACS was assessed using a single dose (30 mL), daily recommended dose (90 mL) and five-day dose (450 mL) against *Streptococcus pyogenes* (ATCC 19615) *and Staphylococcus aureus* (ATCC 25923). The five-day dose exhibits significant antimicrobial efficacy against *Streptococcus pyogenes* (zone of inhibition = 13 mm) and *Staphylococcus aureus* (zone of inhibition = 18 mm) indicating zone of inhibitions are comparable to the positive control, amoxicillin concentration of 10 mg/mL (zone of inhibition = 17 mm). This research sheds light on the antimicrobial properties of Siddhalepa Ayurvedic CoughSyrup and highlights its potential as an adjunctive or alternative therapy for respiratory infections. Thus, it proves that Siddhalepa Ayurveda Cough Syrup is effective against pathogenic bacteria in the respiratory tract.

Keywords: Anti-bacterial, Anti-inflammatory, In-silico ADME, Siddhalepa Ayurvedic Cough Syrup, TLC analysis

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Abstract ID - 82

Development of an Herbal Mosquito Incense Stick Using Mosquito Repellent Herbal Plant Materials

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Mosquito-borne diseases are a significant public health issue at the global level, which necessitates the development of effective and eco-friendly mosquito repellents. Widespread of mosquito-borne diseases such as dengue fever, Japanese encephalitis, malaria, and chikungunya pose a serious threat to the population in Sri Lanka. The transmission of these diseases can be restrained by preventing mosquito bites and controlling their breeding. Chemical mosquito repellents have many drawbacks, such as hazardous side effects and resistance build-up against repellents in mosquitoes over the long period of use, and not being environmentally friendly. So, this research was focused on developing an efficient, safe, user-friendly and eco-friendly herbal mosquito repellent. In this research, an herbal mosquito repellent incense stick was developed by using a blend of herbals, including Piper betel (Betel) leaves, Azadirachta indica (Neem) leaves, Ocimum sanctum (Maduruthala) leaves, and a mixture of Cinnamomum zeylanicum (Cinnamon) leaf oil, and Cymbopogon nardus (Citronella) leaf oil. The bio-efficacy of the herbal incense stick was evaluated according to the World Health Organization (WHO) regulations and guidelines for efficacy testing of household insecticide products. The Human Bait method was used against the free-flying natural indoor mosquito population to assess the repellent activity of herbal mosquito repellent incense sticks. The efficacy of the herbal mosquito repellent incense sticks was investigated through data gathered from 50 surveys completed by individuals who were given a set of 20 sticks each for experimentation. Based on the surveyed data, 54% of volunteers reported incense sticks as highly effective in reducing mosquito bites, while 44% found them somewhat effective, with only 2% indicating low effectiveness. The pleasant scent and long- lasting effectiveness of the herbal blend were appreciated by the participants, suggesting its potential as an environmentally friendly option for mosquito repelling.

Keywords: Cymbopogon nardus , Herbal mosquito repellent, incense sticks, mosquito-borne diseases , Ocimum sanctum

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Abstract ID - 89

Comparative study of anti-urolithiatic activity of *Cucumis melo* and *Astercantha longifolia:* Herbal therapy for kidney stones

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As a common urological problem, kidney stones require novel therapeutic strategies. With the goal of fully comprehending the *in vitro* anti-urolithiatic action of *Astercantha longifolia* and *Cucumis melo*, this study explores the Ayurvedic potential of these plants. The research combines anti-inflammatory, antioxidant, and antibacterial assessments including minimum bactericidal concentration (MBC) and minimum inhibitory concentration (MIC), with phytochemical analysis. To find out if extracts of *C. melo* and A. *longifolia* could dissolve CaC_2O_4, a major component of kidney stones, *in vitro* tests were conducted. An evaluation of the extracts' anti-inflammatory activity revealed that they may be able to reduce inflammation, which is a factor in the development of kidney stones and the interpolated IC50 values are approximately 0.05 mg/mL for *A. longifolia* and 0.2 mg/mL for *C. melo.* The plants' ability to fend off oxidative stress, a critical component of urolithiasis, was measured using antioxidant tests and interpolated IC50 values are approximately 0.015 mg/mL for both *A. longifolia* and *C. melo*. Antioxidant activity was found to be significant, indicating the presence of protective mechanisms against oxidative stress. It was intended to study antibacterial qualities since development of kidney stones also associated with microbial infections. *C. melo* and *A. longifolia* both showed dynamic *in vitro* antiurolithiatic action in the study, with the ability to dissolve CaC_2O_4 at different time periods. Polyphenols and flavonoids were among many bioactive substances found during the phytochemical study. Antibacterial assessments showed significant inhibitory effects, and the antimicrobial potential was indicated by the MBC and MIC values. MIC value was 1.25 mg/mL and MBC value was 20 mg/mL for all three strains including *E. coli, P. aeruginosa, K. pneumoniae* for *C. melo.* MBC/MIC ratios for all three strains were 16 indicating the bacteriostatic effects. Thorough understanding obtained from this study advocates for further examination through *in vivo* investigations and clinical trials, laying the foundation for future research.

Keywords: Anti-bacterial, Anti-inflammatory, Anti-urolithiatic, Kidney stones

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Abstract ID - 106

Therapeutic application of mud therapy in traditional medicine: A review

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Various types of mud have been utilized for therapeutic purposes in traditional medicine in Sri Lanka. Mud is generally a mixture of inorganic matter, organic matter, and water which, due to various physicochemical factors, has undergone geological and biological processes. The objective of this study was to review the formulae which used mud for joint disorders, facial conditions and oedema in Sri Lankan traditional medicine. The data were gathered from traditional authentic texts; a series of *Talpathe piliyam, Deshiya Chikitsa Sangrahaya* and the Ayurveda Pharmacopoeia of Sri Lanka. Inclusion criteria were formulae with mud as the treatment for joint disorders, facial conditions and oedema, while therapies for other disorders were excluded. Among the findings 20% were related to joint disorders and facial disorders, while 60% were related to oedema. Among them, *Humbas mati*, *Bin kiripanu kumbal mati, Kambiseeni pas, Kapelle kumbal mati,* and *Geri pas* were the mud types related to the therapeutic applications. *Humbas mati pralepaya,* was found as a treatment for rheumatic joint swelling, while a cloth consisting of a paste made from *Bin kiripanu kumbal mati* is advised to be tied around the neck to prevent *Alugomara* skin condition affecting the face. For oedema, a paste of *Kambiseeni pas* ground in lime juice is to be applied on the affected area, then covered with *Nika* leaves and *Humbas mati* followed by fomentation using King coconut roots. A pack of *Kapelle* mud with juice of *Pamburu*, *Nasnaran* and *Keekirindiya* leaves is indicated for swelling due to Krait bites. Furthermore, for swelling of the neck, a paste made by ground leaves of *Nika*, *Endaru*, *Kumburu*, *Kumbal mati*, *Geri pas* and *Dumbulu* with lime juice is advised to be applied on the affected area. Therefore, various types of mud are used in traditional medicine to alleviate joint disorders, facial conditions, and oedema and which warrants further research.

Key words: Bin kiripanu kumbal mati, Geri pas, Humbas mati, Kambiseeni pas, Kapelle kumbal mati, Mud therapy, Traditional medicine

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Abstract ID - 111

Relationship between social media usage and mental health status among undergraduates in Sri Lanka in selected universities: An empirical study

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Social media is widely used in current society, particularly among the younger generation. Both positive and negative impacts of social media usage have been reported. This study aims to investigate the impact of social media usage on mental health among undergraduates of Sri Lanka, specifically focusing on depressive symptoms as measured by the Patient Health Questionnaire-9 (PHQ-9). A sample of 140 undergraduate students from Faculty of Indigenous Medicine, University of Colombo and Faculty of Engineering, University of Moratuwa participated in the study. Participants completed a survey that included questions about their social media usage habits and PHQ-9 scores. The results revealed a statistically significant positive correlation between social media usage hours and PHQ-9 scores. [Pearson's correlation coefficient (r) = 0.324, $p < 0.05$]. These findings suggest that excessive use of social media may contribute to higher levels of depression among this demographic. This may be attributed to comparison and envy, fear of missing out (FOMO), negative news and information, distraction from academic responsibilities, social isolation due to social media and economic uncertainty etc. However, it is important to note that correlation does not imply causation, and other significant factors such as academic pressure, financial pressure and personal circumstances may also influence mental health outcomes. Future research should consider these variables for a more nuanced understanding of mental well-being in this demographic. In conclusion, the study underscores that as social media usage hours increase, depressive symptoms also tend to increase among undergraduates in Sri Lanka. This emphasizes the urgency for further investigation to validate these findings and explore potential interventions to alleviate the adverse effects of excessive social media use on mental health among this population.

Key words: Mental health, PHQ-9, Social media, Undergraduate

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Abstract ID - 132

Clinical study on effectiveness of combined mindfulness and meditation on insomnia

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Sleep plays an important role in an individual's health. Insomnia is associated with significant distress or daytime impairment. Insomnia is constantly monitored as a common sleep problem, and efficient treatments are required. Mindfulness can be a valuable complementary approach for managing insomnia and improving sleep quality. The purpose of the study was to determine the effectiveness of mindfulness in treating insomnia in university students. A single group pre and post-test design was conducted with ages from 22 to 28 years. Seventy-seven insomniac University students were chosen after screening 89 subjects using the Regensburg insomnia scale (RIS) and mindful attention awareness scale (MAAS). The intervention group supervised mindfulness three times a week for 12 weeks. The primary outcome was assessed by using standardized sleep quality indices, the RIS, administered at baseline and post-intervention. There was a considerable increase in the mean score (MAAS,) from 0.25 at baseline to 0.97 post-intervention, reflecting enhancement in mindfulness, attention, and awareness. The mean difference of 0.73 underscores the significant improvement following the intervention. Regarding RIS, the mean score decreased from 0.9 at baseline to 0.3 post-intervention, indicating a reduction in insomnia tendencies. The mean difference of 0.6 reflects a positive change after the intervention. Preliminary results indicate a significant improvement in sleep quality in the intervention group, as evidenced by reductions in RIS scores, anxiety, and fear ($p < 0.001$). In conclusion, the study highlights the potential benefits of a holistic approach to address insomnia among university students, emphasizing the role of complementary therapies such as mindfulness and meditation interventions to raise general quality of life and improve the quality of sleep.

Keywords: Anxiety, Insomnia, Meditation, Mindfulness

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Abstract ID - 136

Evaluation of anti-obesity effect and toxicity assessment of a polyherbal mixture used in Sri Lankan traditional medicine

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Obesity has substantially increased globally, and this is leading to dramatic increases in other non-communicable diseases. Consequently, individuals often turn to natural remedies, which can be more effective and have fewer side effects compared to commercial drugs. The present study was conducted to determine the potent ratio of a poly-herbal mixture comprised of leaves of *Murraya koenigii (Curry leaves)*, seeds of *Piper nigrum (Black pepper)*, cloves of *Allium sativum (Garlic)*, and dried rinds of *Garcinia quaesita (Rath Goraka),* which showed anti-obesity effects and to determine its acute and sub-chronic toxic effects in healthy mice. Dried powdered plant parts were mixed in different ratios (1:1:1:1, and each component doubled and tripled separately). Solvent extraction was performed using water, water: acetone 1:1, and water: acetone 1:9 solvent systems. The anti-obesity effect of the polyherbal mixture was evaluated using pancreatic lipase inhibitory assay with orlistat (IC_{50} value 4.25±1.95 mg/mL) as the positive control. The polyherbal mixture with the best pancreatic lipase inhibition was orally administered (250 mg/Kg) to healthy mice (n=5 per group) to determine its toxicity or adverse effects. Of all hot water extracts, the lowest IC_{50} was observed in a 1:1:1:1 mixture (92.05±0.91 mg/mL), and the extract was prepared when the *G. quaesita* (108.85±0.86 mg/mL) component was doubled. Of all the extracts prepared using water: acetone 1:9 solvent system, the lowest IC_{50} values were obtained when *M. koenigii* (38.20±2.04 mg/mL) and *P. nigrum* (47.53±2.59 mg/mL) components were doubled separately. Of all extracts prepared using water: acetone (1:1) solvent system least IC_{50} was given when *G. quaesita* (67.17±1.43 mg/mL) component was doubled. No reduction of IC_{50} was observed with a further increase of the plant components in the mixture. All the active extracts of the polyherbal mixture did not show acute and sub-chronic toxicity effects in mice. No mortality was observed. Hence it can be concluded that the polyherbal extract, which showed potent pancreatic lipase activity, could be useful in the development of anti-obesity drugs.

Key Words: Anti-Obesity, Inhibition, Mice model, Pancreatic lipase, Poly-herbal mixture

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Abstract ID - 156

Integrating Ayurvedic medicine into sports: A solution to prevent early retirement and reduce injuries among athletes in Sri Lanka

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The early retirement of Sri Lankan athletes, particularly in cricket, due to frequent injuries, poses a significant challenge, prompting an exploration into the integration of Ayurvedic medicine as a proactive measure to prevent injuries and extend athletic careers. Ayurveda, based on personalized health, presents promising avenues for injury prevention and recovery within the realm of sports. This study utilizes a mixed-methods approach, combining quantitative analysis and qualitative research involving athletes, coaches, and sports administrators, to comprehensively examine the prevalence of early retirement and the potential effectiveness of Ayurvedic interventions. The findings underscore injuries like anterior cruciate ligament (ACL) injury, chronic back injuries etc. that lead to early retirement, highlighting the urgent need for proactive measures to safeguard the well-being of athletes. Despite the ancient traditions of Ayurveda in Sri Lanka, its integration into contemporary sports practices remains limited, revealing a significant gap in marketing and awareness. To address this issue, a comprehensive marketing strategy is proposed, aiming to elevate the profile of Ayurvedic medicine among athletes, coaches, and sports organizations. The proposed strategy involves positioning Ayurveda as a complementary treatment alongside modern methods, offering affordable and accessible treatment packages tailored to the unique needs of the athletes. Digital campaigns and targeted workshops are integral components of the strategy, designed to disseminate information about the benefits of Ayurvedic interventions in injury prevention and recovery. By showcasing success stories and emphasizing the complementary nature of Ayurveda with contemporary sports medicine, the strategy aims to shift perceptions and promote widespread adoption. In conclusion, this research rooted in a deep understanding of the challenges faced by Sri Lankan athletes, positions Ayurvedic medicine to mitigate early retirement rates. The integration of Ayurvedic principles into sports practices holds the potential not only to enhance the well-being of athlete but also to contribute to the longevity and vibrancy of the Sri Lankan sports community.

Keywords: Ayurvedic medicine, early retirement, marketing, sports injuries, Sri Lankan athletes

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Abstract ID - 166

Effect of dry cupping in the management of knee osteoarthritis: A case report

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Hijama (Cupping) is an ancient method of treatment that has been used to stimulate the flow of blood, to help divert accumulated *fasid madda* (bad humours). *Hijama* is a type of *Ilaj bil Tadbeer* (regimental therapy) recommended for the treatment of *Waja al Mafasil Barid al Rakba (*knee osteoarthritis*).* The aim of the study is to analyze the effect of dry cupping based on a change in the score on the Western Ontario and McMaster University Osteoarthritis Index (WOMAC) between the baseline and at 15 days. A 54-year-old female patient presented to the outpatient department (OPD) at the National Ayurveda Teaching Hospital with complaints of pain and swelling in the right knee joint, difficulty standing and walking for four years. The patient was unable to perform her daily physical activities. On palpation of the left knee joint crepitus, tenderness and mild swelling were present. There was bilateral restriction of flexion and extension of knee joint movements. X-ray revealed narrowing of space and osteophyte formation in the right knee joint. The patient was diagnosed as afflicted with knee osteoarthritis. The patient was assessed on baseline, 15 days from onset of treatment and after completion of treatment for pain, stiffness, swelling and range of movement. The total score at baseline was 64 which improved to 48 at 15 days post-intervention demonstrating that dry cupping is effective in the management of knee osteoarthritis. Therefore, further randomized clinical studies need to be carried out to validate the effectiveness of dry cupping in the management of knee osteoarthritis.

Keywords: Dry cupping, Knee osteoarthritis, Stiffness, Swelling

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Abstract ID - 171

Evaluating the therapeutic efficacy of traditional Chinese medicine for the management of depression in patients with premenstrual symptoms: A case series study

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Conventional medicine defines depression based on mood, behavioral, and physiological changes, meanwhile, traditional Chinese medicine (TCM) categorizes depression into various subtypes, including Yu Zheng (depression/stagnation), Bai He Bing (lilium syndrome), Mei He Qi (plum-Stone syndrome), Zang Zao (agitation), and Xin Ji Zheng Chong (palpitations/anxiety). Up to 90% of women of childbearing age experience at least one premenstrual symptom during their reproductive years, which typically commence up to two weeks before menstruation and cease shortly after the onset of the menstrual period. This study was conducted to investigate the effectiveness of TCM in the treatment of depression in patients with premenstrual symptoms. The study involved seven female patients seeking treatment at the Shenling Clinic Pvt. Ltd. in Kalubowila, Sri Lanka. Two diagnostic groups emerged according to TCM diagnosis: five patients exhibited liver qi stagnation and spleen qi deficiency (1st group), while the remaining two showed symptoms of liver blood stasis, kidney yin deficiency, and spleen qi deficiency (2nd group). Tailored acupuncture treatments were administered, employing Liv3, GB34, GB41, Sp3, Sp6, St36, P6, and H7 for the first group, and Liv3, GB34, GB41, Sp10, Sp3, Sp6, St36, P6, H7, K3, K6, and Ren4 for the second group. Treatment duration ranged between 6 -12 weeks, depending on the severity of the symptoms and individual response to therapy. Each session lasting 20 to 30 minutes was performed three times a week. Disposable, sterile stainless-steel needles (25 × 0.25 mm) were utilized. Furthermore, dietary adjustments and lifestyle modifications were integrated based on TCM principles. Patient Health Questionnaire-9 (PHQ-9) and the Premenstrual Symptoms Screening Tool (PMSS) assessed progress pre- and post-treatment. All participants provided written consent, granting permission to publish their data anonymously, preserving confidentiality. Following the intervention, a notable improvement in symptoms was observed. Subsequently, the paired sample t-test results indicated a statistically significant difference in the severity of the symptoms before and after treatments related to premenstrual symptoms ($p = 0.0001$) and depression ($p = 0.0001$). TCM demonstrates potential in effectively alleviating symptoms and enhancing well-being in patients experiencing depression with premenstrual symptoms.

Keywords: Acupuncture, Depression, Premenstrual symptoms, Traditional Chinese medicine

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Abstract ID - 175

Antimicrobial activity of ethanol extracts of bark, seed, pulp, and peel of *Dialium ovoideum* Thwaites

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Growing global interest focuses on investigating plant-derived compounds as natural antimicrobial agents, particularly in response to the current challenges posed by the increasing prevalence of resistant microorganisms. *Dialium ovoideum* Thwaites (velvet tamarind), is an endemic plant in Sri Lanka which has traditionally been utilized to cure various health issues, including treating skin infections, and protecting wounds against germs. The antimicrobial properties of the leaves of *D. ovoideum* Thwaites have been reported. Thus, this study examined the antimicrobial activity of ethanol extracts of bark, seed, pulp, and peel of *D. ovoideum* Thwaites. The Soxhlet method was used to extract compounds from bark, seed and peel, while the pulp was macerated employing ethanol. The agar well diffusion method was used to assess antimicrobial activity against clinical isolates of *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae,* and *Candida albicans*. The mean diameter zone of inhibition was tested for different concentrations of plant extracts (1.0×10^5 - 50.0 µg/mL) compared to the positive controls, gentamicin and ciprofloxacin for bacteria and fungi respectively. The ethanol extract of bark indicated antimicrobial activity on all tested isolates at different concentrations. There was no zone of inhibition by extracts of seed against *E. coli*, pulp against *C. albicans* and, peel against *S. aureus* at the tested concentrations. *K. pneumoniae* was found to be the most sensitive isolate to all extracts at 1.0×10^3 - 50.0 µg/mL concentrations. *E. coli* demonstrated greater sensitivity to peel extract (5.0×10^3 µg/mL) with a zone of inhibition of 12.8±0.2 mm. Furthermore, *C. albicans* displayed the highest sensitivity to bark extract (5.0×10^3 µg/mL), resulting in a zone of inhibition of 12.3±1.0 mm. The results suggest that *D. ovoideum* Thwaites could be a promising target in searching for natural antimicrobial agents.

Keywords: Agar well diffusion method, Antimicrobial activity, *Dialium ovoideum* Thwaites, Ethanol extracts, Zone of inhibition

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Abstract ID - 180

Integrating indigenous plant-based medicine and nutrition in managing chronic kidney disease: A comprehensive review

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Chronic kidney disease (CKD) has become a critical global health challenge, exerting substantial economic and social impact, particularly in agricultural nations like Sri Lanka where widespread agrochemical use escalates the risks of kidney-related ailments. In the absence of kidney replacement therapy, the ultimate stage of CKD (renal failure) is invariably fatal. Traditional pharmacological interventions such as angiotensin-converting enzyme inhibitors aim to slow CKD progression, yet patients are progressively turning to alternative treatments, encompassing nutritional changes and indigenous plant-based medicines. This comprehensive review delves into the extensive heritage of Sri Lankan indigenous medicine, highlighting natural treatment options for CKD management. Employing a literature review and survey, the research draws upon Ayurvedic texts, credible scientific databases, and the hands-on expertise of Ayurvedic physicians from the Puttalam district. Data were collected using the participation interview method via a questionnaire. The paper emphasizes various herbs such as Nil katarolu (*Clitoria ternatea L.),* Murunga (*Moringa oleifera Lam*)*,* Kekiri (*Cucumis melo L.*), Akkapana (*Kalanchoe laciniata*), *Komarika* (*Aloe vera*)*, Pol pala* (*Aerva javanica*), *Ranawara* (*Senna auriculata*), *Elapitawakka* (*Phyllanthus debilis*) etc. Vegetables, and fruits that should not be used are also mentioned. Literature review revealed that these herbs possess various pharmacological properties, including anti-inflammatory, antioxidant, diuretic, and nephroprotective effects. Furthermore, according to results obtained nutritional strategies like consumption of locally grown fruits and vegetables, limiting sodium, protein intake, monitoring potassium and phosphorus, managing fluid intake, focusing on healthy fats, monitoring blood sugar levels etc. help to control symptoms, slow disease progression, and reduce the risk of complications. The reported methods display enhanced renal function, a decrease in proteinuria, oxidative stress, and inflammation markers. The concluding evidence from the review supports the incorporation of traditional plant-based medicines and nutritional intervention into CKD treatment regimens. The findings advocate for thorough research and clinical studies to validate the efficacy of these holistic practices, potentially revolutionizing care for CKD patients.

Keywords: Chronic kidney disease, Indigenous medicine, Integrative healthcare, Nutritional strategies, Plant-based medicine

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Abstract ID - 183

Role of dietotherapy (*ilaj bil ghiza*) in the management of diabetes mellitus (*ziabetus*)

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Diabetes (*ziabetus*) is a prevalent non communicable disease, affecting 10.5% of the adults globally. Various preventive and treatment modalities are employed to manage diabetes, among which dietotherapy (*ilaj bil ghiza*) holds significance. As per Unani, the dietary intake could be categorized as food (*ghiza*), drug (*dawa*), food cum drug (*ghiza e dawa*) and drug cum food (*dawa e ghiza*), emphasizing the dual role of food in nutrition and pharmacology. The objective of this study is to elucidate the significance of diet therapy in the management of diabetes and to evaluate the personalized dietary modification for the management of diabetes. Data were sourced from Unani classical texts, various books, and scientific journals using databases such as PubMed and google scholar, with a focus on publications from 2010 onwards by using the search terms diabetes mellitus, diet, glucose control, hyperglycaemia. Dietotherapy plays a key role in glycaemic control, emphasizing hypoglycaemic, cooling (*mubarrid*), and toning (*muqavvi*) foods for the kidney and liver. The Unani scholar Hippocrates attributes diabetes to an imbalance in temperament specially in the Hot and Dry (*soo e mizaj har yabis*), suggesting that the diet with cold and moist (*barid and ratab mizaj*), known for strengthening the kidneys, is beneficial. Moreover, *Jalinoos* advocated alkalizer, cooling (*tabreed kulliya*), and astringent and digestive (*qabizath vo hamizath*) foods to treat diabetes. The *Unani* medical system advocates a personalized dietary plan tailored to the age, temperament, body state, and body build of an individual for effective diabetes management. This includes incorporating complex carbohydrates, fiber-rich foods, certain herbal supplements, and limiting refined sugars acknowledging diverse responses to food and enhancing the overall effectiveness of the management plan. In conclusion, this review article highlights the significance of diet therapy (*ilaj bil ghiza*) and personalized dietary involvement as potentially valuable components in the holistic management of diabetes (*ziabetus*).

Keywords: Diabetes mellitus, Diet therapy, *Ilaj bil ghiza*, *Ziabetus*

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Abstract ID - 187

Anti-cancer properties of herbal medicinal plants commonly used in Sri Lankan indigenous medicine in cancer treatments

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This study identified medicinal plants commonly found in palm leaf manuscripts to treat cancers and reviewed their anti-cancer properties based on existing research. Studies published in English from 2018 to 2024 in PubMed, Google scholar, and ScienceDirect were used in this review. *Zingiber officinale* Roscoe. (ginger), *Nigella sativa* L. (black cumin), *Allium sativum* L. (garlic), *Azadirachta indica* A. Juss. (neem), *Cuminum cyminum* L. (Cumin), *Syzygium aromaticum* (L.) Merr & L.M.Perry (Clove), *Curcuma longa* L. (turmeric), *Aloe vera* (L.) Burm. f. (aloe), and *Cinnamomum zeylanicum* Blume. (cinnamon) are the plants documented in the cancer treatment. Gingerol in ginger blocks the entry of cancer cells into S-phase by reducing the production of cell cycle-regulatory proteins. Animal studies have shown that shogaols in ginger inhibits the growth of xenografts. Thymoquinone in black cumin and organosulfur compounds in garlic triggers apoptosis by upregulating caspase and bcl2-like-protein 4 (Bax) and downregulating B-cell lymphoma 2 (bcl-2) pathways. Black cumin and neem suppress the protein kinase B (Akt) and nuclear factor kappa B (NF-KB) pathways and stop cell proliferation. Cumin enhances detoxification of carcinogens, reduce DNA damage, and arrest cell cycle. Eugenol in clove disrupts the DNA and mitochondria in cancer cells. Curcumin in turmeric reduces reactive oxygen species, inhibits NF-KB pathway, downregulates pro-inflammatory cytokines, modulates AP-1 transcription factor, suppresses COX-2 enzyme, and regulates immune cell responses. Emodin in aloe suppresses the mechanistic target of Rapamycin complex 2 (mTORC2) pathway in prostate cancer cells and limit their growth. Aloin, disrupts the formation of new blood vessels by suppressing the vascular endothelial growth factor (VEGF) production, and disrupts growth and spread of tumour cells. Cinnamaldehydes and polyphenols in cinnamon arrest cell cycle, downregulate matrix metalloproteinase expression, induce apoptosis, modulate different cell signaling pathways, and inhibit angiogenesis. The established anti-cancer properties of these plants used in long-standing traditional medical approaches are astounding.

Keywords: Anti-cancer properties, Cancer, Medicinal plants, Sri Lankan indigenous medicine

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Abstract ID - 204

Phytochemical composition of aqueous and ethanolic extracts of *Ocimum tenuiflorum* (holy basil) leaves

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Ocimum tenuiflorum, commonly known as holy basil or Tulsi, is an aromatic plant native to the Indian subcontinent and cultivated throughout Southeast Asia. It holds significant cultural, religious, and medicinal importance. This study aimed to compare the phytochemical screening in aqueous (AEOL) and ethanol (EEOL) leaf extracts of *O. tenuiflorum*. *The plant sample was authenticated and extracted with the relevant solvent in a 1:4 (w/v) ratio. Qualitative and quantitative phytochemical screening were done following standard methods. The qualitative screening showed both AEOL and EEOL contained alkaloids, flavonoids, saponin, phenol and tannin. However, the positive observation was stronger for flavonoids in AEOL and for saponin in EEOL.* The total phenolic content is expressed as gallic acid equivalent (GAE) per gram of a dried weight of leaves and the results showed that the total phenolic content in AEOL was 0.21 ± 0.00 mg GAE/g whereas it was 0.21 ± 0.00 mg GAE/g in EEOL. The total flavonoid content was expressed as milligrams of quercetin equivalent (QE) per gram of dried leaves and the results showed that the total phenolic content present in AEOL was 0.70± 0.00 mg QE/g whereas it was 0.77 ± 0.00 mg QE/g in EEOL. According to the findings, both AEOL and EEOL are extracts with antioxidant potential as they contain flavonoids and phenols which are the phytochemicals that contribute to the antioxidant potential of most plant materials. However, there was no significant difference ($p < 0.05$) between AEOL and EEOL for total flavonoid and phenol content. Hence, AEOL and EEOL have been identified as extracts with similar antioxidant potential.

Keywords- *Qualitative, Quantitative,* Total *flavonoids,* Total phenolic content

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Abstract ID - 205

The efficacy of *Rasna Sapthaka Kwatha* with *Murungadi Lepa* local application in the management of *Amavata* (rheumatoid arthritis): A case study

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Amavata is a disease that occurs when *Ama* and *Vata* are aggravated at the same time conjugate together and accumulate in *Trika Sandhies* and is characterized by severe pain in joints with features of inflammation, stiffness of the joints, and other generalized symptoms that limit day to day activities. Based on clinical symptoms, it may be correlated with rheumatoid arthritis in modern texts. The long-term use of allopathic drugs only provide temporary relief and reportedly present some side effects. In the present case, a female patient aged 57 years with a history of pain and morning stiffness in multiple joints for one year, swelling in both hands and wrist joints for 4 months, intermittent low-grade fever for 5 months, *Angamarda*, *Thrushna*, *Alasya*, *Gurava*, *Apaka*, and *Bahu Mutrata* with *Alpanidrata* for 4 months was attended to at the Outpatient Department of National Ayurveda Hospital -Borella. Complete history and clinical evaluation led to the diagnosis of *Amavata*. The diagnostic criteria of *Amavata* are based on signs & symptoms according to Ayurveda and of rheumatoid arthritis based on European League Against Rheumatism/American College of Rheumatology classification criteria 2010. Considering the signs and symptoms, the patient was treated with *Rasna Saptaka Kwatha* with *Murungadi Lepa* (local application) for 14 days. After the treatment, joint pain (75%), stiffness (75%), *Angamarda* (75%), *Aruchi* (50%), *Alasya* (75%), *Jwara* (75%), *Apaka* (50%) were reduced significantly whereas joint swelling remained unchanged. The rheumatoid factor and erythroid sedimentation rate (ESR) reduced up to 65%. There were no side effects observed during and after the treatment. Therapy gives significant relief in symptoms of *Amavata*. Therefore, it is concluded that *Rasna Panchaka Kwatha* with *Murungadi Lepa* was effective for the treatment of this patient suffering from *Amavata.* Therefore, further research with more subjects is recommended.

Keywords: Ama, Amavata, Murungadi Lepa, Rasna Saptaka Kwatha, Rheumatoid arthritis

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Abstract ID - 209

In-vitro antacid screening of formulated effervescent granules containing aqueous extracts of *Aloe barbadensis* Miller leaves and *Punica granatum* peels

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The plants, *Aloe barbadensis* Miller and *Punica granatum* have been recognized for their potential therapeutic properties. Notably, both plants have been traditionally utilized for their efficacy in addressing ulcerative gastritis, suggesting their potency in providing relief from gastric ailments. The objective of this study was to determine the *in-vitro* antacid activity of formulated effervescent granules containing aqueous extracts of *Aloe barbadensis* Miller leaves and *Punica granatum* peels. Aqueous plant extracts were prepared by sonicating each plant material separately. Then freeze-dried powder of each plant extract was obtained to formulate effervescent granules. The ratio of 1:2 was considered from aqueous extracts of *Aloe barbadensis* Miller leaves and *Punica granatum* peels respectively to prepare 50 g of effervescent granules. The formulated effervescent granules were then screened for *in-vitro* acid neutralizing capacity by using the titration method of Fordtran's model. The duration of consistent acid neutralization of the effervescent granules was evaluated using *in-vitro* Vatier's artificial stomach model. Eno was used as the positive control in each assay. Data were expressed as mean ± SD of three replicate measurements. Data analyses were carried out using Microsoft Excel 2019. The results obtained for the titration conducted using Fordtran's model for 3 g of prepared granules and actual dose of 5 g Eno sample were 31.37 ± 0.08 mmol and 37.02 ± 0.12 mmol (consumed H^+) respectively. The pH of the formulated effervescent granules was 7.5. The Vatier's artificial stomach model which measures the duration of consistent acid neutralization, demonstrated significant activity of the formulation ($p<0.001$). The formulated effervescent granules containing plant extracts exhibited a commendable antacid activity, as evidenced by their acid-neutralizing effect compared to the positive control. Overall, these findings underscore the potential of the formulated effervescent granules as a promising antacid solution to use for the treatment of ulcerative gastritis.

Keywords: Acid-neutralizing effect, antacid activity, artificial stomach model, effervescent granules

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Abstract ID - 215

Knowledge, attitudes and practices on oral hygiene among 12 year old national school attendees in *Gampaha* educational division, Sri Lanka - A knowledge, attitude and practice study

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Oral health is a key factor in a child's overall health and well-being. It affects the functional, psychological, and social dimensions of a child. According to the World Health Organization, the promotion of oral health is a cost-effective strategy to reduce the burden of oral diseases. Therefore, it would be crucial to analyze the oral health situation and gather information on knowledge, attitude, and hygiene practices (KAP) to plan oral health programs. This study was conducted to determine KAP on oral hygiene among 12-year-old school attendees in Gampaha educational division, Sri Lanka. Ethical clearance (Reference number: PGDHD/20/43) was obtained from the Ethics Review Committee, Faculty of Medicine, University of Colombo, Sri Lanka. The study involved 480, 12-year-old national school attendees in *Gampaha* educational division. A stratified cluster sampling technique was used. A pilot study was conducted on 10% of the sample. IBM SPSS version 22 was used to analyze the collected data and Microsoft Excel 2010 was used to draw graphs. A self-administered, closed-ended questionnaire with three sections was used to collect the data. The three sections included socio-demographic information about school attendees, socio-demographic information about their parents and questions about knowledge, attitudes, and practices on oral hygiene. The overall response rate was (98%). More than half of the respondents (76.5%) had good knowledge on oral health. Usage and knowledge regarding dental floss as an auxiliary dental aid were very poor. Over three-quarters (79.3%) of those surveyed were aware that fluoride helps to prevent tooth decay and all of them use fluoride-containing toothpaste to brush their teeth by prudently putting their knowledge into practice. Most respondents (92.1%) had a positive attitude towards oral health. The majority (93.2%) of respondents emphasized the importance of maintaining good oral health. Less than half of the respondents (43.2%) follow good hygiene practices. In terms of oral hygiene, respondents had good knowledge, positive attitudes, and fair practices. A fair linear correlation exists between knowledge and hygienic practices. The gender and the educational level of the parents of the respondents appear to be directly related to their level of knowledge, attitudes, and hygiene practices.

Keywords: Health, Oral, Respondents

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Abstract ID - 228

Novel clinical grading system for *Nasa arsha* (nasal polyposis): An overlook to improve interpretability of clinical outcome

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Nasa arsha (nasal polyposis) is a non-neoplastic mass of oedematous sino-nasal mucosa with a prevalence of 1–4% globally. Clinical grading systems and evidence-based guidelines are not well defined in the literature regarding the assessment of a patient with *Nasa arsha*. The objective of the study is to develop a novel comprehensive grading system to record and assess the clinical features of *Nasa arsha* with special reference to nasal polyposis in evidence-based clinical trials. Data were collected from medicinal databases such as PUBMED, Taylor and Francis, Google scholar *etc*., and the evidence of systematic reviews were integrated. The observations were recorded, and the results were analyzed by percentage. The criteria based on the clinical features of the patients and the radiographic conditions were developed to aid in predicting the status of the disease. Majority of patients had nasal obstruction (100%) in *Nasa arsha*. Further, the grading system includes other clinical features such as rhinorrhoea, sneezing, postnasal drip, smell sensation, taste sensation, facial pain /congestion, headache, *etc*. in different percentages. Each clinical criterion is graded varying from 0, 1, 2 and 3 with quantitative clinical parameters relevant to each grade according to the severity which help in the clinical assessment. The novel grading system increases the accuracy of interpretability of the outcome in relation to the baseline grades of the clinical features than the existing grading system/s. The new classification system with content validity will aid the clinicians and researchers in scientific studies as well as a prognostic tool in medical and surgical decision making. Furthermore, the novel grading system will lead to consistent therapeutic approach with quantitative standards, which will expand the interpretability of clinical outcome.

Key words: Headache, Hypo nasal voice, Nasal obstruction, Quantitative

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Abstract ID - 231

A comparative clinical study on Siddha diagnosis techniques for the diagnosis of *Neerizhivu Mathumeham* (diabetes mellitus type 2)

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Neerizhivu Madhumeham (NM) is a disease documented in the Siddha system of medicine and related to diabetes mellitus (DM). Exploring the integration of ancient medical knowledge and technology will provide sustainable and affordable healthcare solutions for the public. Furthermore, a comparative study of Siddha and modern diagnostic methods for NM has not been studied previously. Thus, the current study was designed to test the correlation between Siddha and modern diagnostic methods in NM (DM). Sixty patients diagnosed with DM, aged 18-64 years, were randomly selected from Government Siddha Medical College, Palayamkottai, Government District Headquarters Hospital, Thoothukudi, and Gopalasamudram village, India, according to the inclusion and exclusion criteria. Informed written consent was obtained. The ethical clearance was obtained and registered at the Clinical Trials Registry of India. The Siddha diagnostic methods (*neerkuri*, *neikuri*, *naadi* (internal vibrant), and *manikkadai*) and modern diagnostic methods [urine full report and fasting plasma glucose (FPG)] were analyzed using independent sample t-test and one-way ANOVA. A significant association was observed in FPG with *neikuri* (P = 0.02), and *naadi* (P = 0.01). The *Doshas* affected in the patients, *Kabhavatham*, *Vathapiththam*, *Piththavatham,* and *Vathakabham,* were identified by *naadi* and *neikuri*. High FPG (>320 mg/dL) was noted in *Kabhavatham* compared to *Vathapiththam* and *Piththavatham* conditions of NM. Low FPG (199.6±48.6 mg/dL) was observed in *seerana pakkuva neer* type of urine. Further, froth and odour were observed in *Kabhavatham* condition. Specifically, the study documented a pendulum movement of *naadi* in all NM patients with FPG > 126 mg/dL. An 8 ¼ fingerbreadth of *manikkadai was observed* when the mean FPG was 258.46 mg/dL in 54.9% of patients. The current study concluded that *neikuri* and *naadi* could be used as diagnostic methods for NM (DM). However, further detailed studies will be warranted before clinical practice.

Keywords: *Manikkadai, Naadi, Neerkuri, Neikuri, Siddha system of medicine*

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Abstract ID - 232

Study on Alopecia areata - An Ayurvedic perspective

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Alopecia areata, an autoimmune disorder, manifests as sudden hair loss in specific body areas, predominantly the scalp, with an unknown etiology involving genetic, environmental, and immunological factors. Ayurveda correlates alopecia areata with '*Indralupta*', characterized by circular or patchy hair loss on the scalp due to imbalances in *Pitta and Vata doshas*, along with *rakta dhatu* and *twak* involvement. This study aims to investigate alopecia areata and its Ayurvedic perspective, with specific objectives including exploring etiopathogenesis from Ayurvedic and modern viewpoints, examining clinical features, and identifying treatments from Ayurveda and Sri Lankan traditional medicine. The current study was conducted as a literature review. All the data were collected from *Vruhaththraya*, modern medical dermatology books, research articles specially focusing on alopecia areata from ResearchGate, PubMed, Google Scholar, international Ayurveda and traditional research journals available open access and Sri Lankan traditional medicine books. Results suggest a correlation between alopecia areata and *Indralupta* as mentioned in Ayurveda authentic texts, with *Vata, Pitta, Kapha Dosha*, and *Rakta Dushya* considered as main factors. Other contributors include dietary habits, climate, psychological factors, sensory organ imbalances, excessive intake of *Kshara* (Alkaline preparations), *Lavana* (salts), and *Viruddha Ahara* (Incompatible foods), and presence of *rakthaja krimi*. Pathogenesis involves *Pitta* and *Vata dosha* imbalances, causing hair follicle malnourishment, exacerbated by vitiated *Vata* destroying *Asthi dhatu*, and impeded hair regeneration due to accumulated *Kapha* and *raktha*. Treatment modalities for *Indralupta* include surgical procedures like *Siravyadha, Pracchanna*, and *Lekhana*, as well as *samshodhana* and *samshamana* measures such as *Nasya, Rasayana, Moordha taila (Abhyanga)* with *Pathya sevan*, and *Apathya nisheda*. The most prevalent treatment for *Indraluptha* includes special external application or *Lepa* of herbal-mineral formulations and single drugs in Sri Lankan traditional medicine. This research provides comprehensive insights into alopecia areata from an *Ayurveda* and Sri Lankan traditional medicine perspective, offering potential avenues for integrated treatment approaches to address this challenging condition.

Keywords: Alopecia areata, *Ayurveda*, etiopathogenesis, *Indralupta*, treatments

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Abstract ID - 236

A comprehensive review on dietary interventions for management of autoimmune diseases: insights from Unani medicine

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Autoimmune diseases arise from an aberrant immune response targeting the body's own cells, resulting in chronic inflammation and tissue damage. This comprehensive review investigates dietary interventions for autoimmune diseases within the framework of *Unani* medicine, a holistic medical system emphasizing preventive, curative, and rehabilitative healthcare. The review aims to explore the efficacy of dietary interventions in managing autoimmune diseases from the perspective of *Unani* medicine. Data were gathered from journal articles, electronic databases such as PubMed, Google Scholar from 2013 to 2023, and classical Unani textbooks and ethnobotanical textbooks. *Unani* medicine recognizes the significance of dietary interventions as an alternative to conventional immune suppressants in managing autoimmune diseases. Unlike conventional treatments, *Unani* medicine adopts a personalized approach based on the *Mizaj* (principles of temperament) to prescribe appropriate dietary regimens, aiming to restore balance and harmony within the body, thereby alleviating symptoms and promoting overall health. The review highlights the success of *Unani* medicine in utilizing dietary interventions to manage autoimmune diseases effectively. The statistical analysis of the collected data revealed compelling results for patients with autoimmune diseases with 75% reporting improvement with *Unani* dietary interventions. A comparative analysis demonstrated a significant reduction in inflammatory markers ($p < 0.05$) among patients treated with *Unani* dietary interventions compared to conventional treatments. Furthermore, a subgroup analysis demonstrated a notable improvement in quality-of-life scores ($p < 0.01$) in patients managed with *Unani* dietary interventions compared to those on conventional treatments. However, the review underscores the need for further research to validate the efficacy of these interventions and optimize their application in clinical practice. By bridging the gap between traditional *Unani* wisdom and modern scientific understanding, this review advocates for a more holistic and personalized approach to healthcare, particularly in the management of autoimmune diseases.

Keywords: Autoimmune diseases, dietary interventions, Unani medicine

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Abstract ID - 238

An exploratory study of the traditional methods used by snake venom physicians to identify the snakes in Sri Lanka

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The system of indigenous medicine in Sri Lanka has evolved over the last centuries, with snakebite treatment tradition as a specialty. The snake venom physicians play a crucial role in using various methods for treating snake venom to save lives. In snakebite treatments, it is essential to identify the type of snake that bit the patient and start treatment promptly. The present study analyzes the techniques used by traditional snake venom physicians to determine the type of snake, and methodology used to treat the patient. In this study, data were gathered from personal interviews with traditional snakebite physicians (05) and from literary sources such as Ayurveda textbooks, indigenous medical books, palm-leaf manuscripts, and handwritten manuscripts. Several types of methods were identified (05), including examination of *Tridōṣa*, testing taste and vision of the patient, examination of the wound and observations of the messenger. *Tridōṣa* examination involves observation and questioning to determine the type of snake according to the symptoms of the patient. Another method used to identify the snake category is judging according to the smell and characteristics of the wound. The examination of the sense of taste is done by the method called *Rasadūtaya* which determines the snake accordingly. *Pahandūtaya* is the method to test the vision with a flame produced by fabric wrapped with a mixture of herbs combined with sesame oil. The examination of the messenger is called *Dūta Parīkṣāva* and is based on the observations of the appearance, movements, expressions, words, and physical characteristics of the messenger who brings the message about the patient. These valuable traditional techniques which have been practically applied and proven beneficial for emergency therapy since ancient times are now being underutilized. Therefore, it is important to conduct basic research to investigate the rational basis of these methods and preserve this knowledge for future generations**.**

Keywords: *Dūta Parīkṣāva, Pahandūtaya, Parīkṣāva, Rasadūtaya, snakebite treatment, Tridōṣa*

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Abstract ID - 247

Formulation & quality assessment of soapnut antidandruff shampoo

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Dandruff is a common complaint among the urban population and to cater for such consumers there are various anti-dandruff products. However, most of the products do not produce long-lasting results and most are not cost-effective. In addition, the local market doesn't have many natural anti-dandruff shampoos. The purpose of the study was to develop an anti-dandruff hair shampoo, formulation, and validation of the prepared product. This study investigated the anti-dandruff activity of fruit pulp of *Sapindus trifoliatus* Linn. (Gas penela) for clearing dandruff from the scalp. The present product did not have any synthetic anionic surfactants. Physical characteristics of developed formulations were evaluated for the stability and the quality as per standard protocol. Total solid content is 1.6 % w/w whereas market- available shampoo has normally 24 % w/w. Foam volume is 68 v/v, whereas market shampoos contain 107 v/v. Cleaning action is 0.34% which is much higher (21.43%) in many of the market products. There is a linear relationship between the foam volume and cleaning action. Due to low foam volume and low cleaning action, the present shampoo may be considered as a mild shampoo. Since this is preliminary study statistical data analysis has not been included. Consumer surveillance study indicated that the shampoo acts as a good anti-dandruff product which reduces itchiness, dryness, and splitting of hairs in addition to dandruff. The present study was restricted to 24 individuals. Therefore, sample size needs to be increased and further studies are yet to be done before commercializing the product.

Keywords: Anti-dandruff , Natural surfactants, soapnut

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Abstract ID - 248

Investigation of *Dinacharya* (daily regime) among children and their mothers in the Pediatric Ward at the National Ayurveda Teaching Hospital

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Dinacharya (daily regime) is activities which are practiced from waking up in the morning to sleeping at night and that covers all activities during the whole day. Daily routines are an important aspect of childhood development and important in promoting skills. The objective of this study was to investigate *Dinacharya* at home among the children and their mothers in the Pediatric Ward at the National Ayurveda Teaching Hospital. Methodology was an observational cross-sectional study. Thirty participants who are mothers and children were recruited for the survey study and the informed consent of the mothers were obtained. The study was mainly conducted based on the data which was collected through close-ended questionnaire regarding practicing *Dinacharya*. The data was analyzed with Chi square test using SPSS Software. According to the results, most of children were aged between 1-5yrs (40%), with 50% male and female, 86.7% Sinhala, 70% Buddhist and 50% no education. Most of the mothers were aged between 31-40 yrs (40%), 86.7% Sinhala, 70% Buddhist, 30% employed , 100% married and 73.4% educated at ordinary level (O/L).There was a significant relationship between the age of the child with *Abyanga* (Application of Oil) (p=0.000), Child education with *Vyayama* (Exercise)(p=0.044), Diseases of the child with *Dhanthadawana* (brushing teeth)(p=0.023) as well as the age of the mother with the lunch time (p=0.000) and age of the mother with dinner time(p=0.048), race of the mother with *Snana* (bathing)(p=0.000) and race of mother with *Gandusha* (gargling) (p=0.052), occupation of the mother with exercise (p=0.046), education of the mother with *Snana* (p=0.035). These results may be valuable in the development of educational programs and strategies for the promotion of health by practicing *Dinacharya*.

Key words: Children, Daily regimen, *Dinacharya*, Mothers, Practice

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Abstract ID - 251

A comprehensive study of Vitiligo treatments in Sri Lanka's main medical systems

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An individual's attractiveness and beauty are intimately related to their skin condition and overall well-being. Vitiligo, characterized by white patches on the skin due to melanocyte loss, significantly impacts a patient's quality of life. Early diagnosis and effective treatment are crucial for managing this condition. This study aimed to explore the differences in Vitiligo treatments across three medical systems: allopathic medicine, Ayurveda, and traditional Sri Lankan medicine. This study conducted a comprehensive literature review, consulting Ayurvedic texts, indigenous medical books, modern medical literature, and previous research projects to gather information on the different treatments of Vitiligo. Ayurveda and traditional medicine discuss external therapies focused on natural ingredients such as plants, animal parts, minerals, and combinations of two or more. Internal treatments like decoctions, *Peya*, porridge, and extracts of plant parts, which are *Tridõsha Shãmaka*, purify the blood and ultimately improve skin health. Ayurvedic treatments also address root elevation, the *Pancha-Karma* technique, and mental well-being. Allopathic treatments commonly use topical corticosteroids, camouflage lotions, and cover marks to treat Vitiligo. Systemic medicine, based on patient weight, includes Psoralen and ultraviolet light A treatment (PUVA) and surgical intervention. While sunlight therapy is referenced in all three medical systems, allopathic medicine does not prioritize addressing the underlying causes and spiritual aspects. According to the findings, the treatment strategy of the abovementioned medical system's treatment strategy focuses on improving melanogenesis and increasing skin re-pigmentation. Ayurveda and traditional Sri Lankan medicine offer cost-effective, patient-friendly treatment options. On the other hand, allopathic medicine can be expensive and may lead to complications if therapy is abruptly discontinued. In summary, the findings of this study emphasize the importance of personalized treatment strategies that enhance melanogenesis and promote skin re-pigmentation. Ayurveda and traditional medicine provide accessible solutions, while allopathic medicine requires careful management to avoid adverse effects.

Keywords: Allopathic medicine, Ayurveda, Traditional medicine, Vitiligo

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Abstract ID - 254

Role of *Thathu* and *Jeeva katpam* (rejuvenating metals, minerals, and animal sources) in *Siddha* medicine – A review

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Siddha system of medicine is a renowned holistic system of traditional medicine emphasizing curative and preventive measures. The strength of *Siddha* medicine is exhaustive practice of physical, social and mental wellness by implementing appropriate living patterns, meal regimens, and efficient medications obtained from *thavara* (medicinal plants) and *thathujeevam* (metals, minerals and animal sources). This also includes *Muppu* (a combination of three salts) which is considered a unique preparation in *Siddha* system. Among those materials, *Siddhars* listed out numerous *kaya katpam* (rejuvenating) sources in their palm leaf manuscripts and texts. *Kaya katpam* is a very effective *Siddha* therapy that replenishes the cellular physiology and modifies immunological competence to totally cleanse (anti-age) the body. *Katpam* can restore, revitalizing, and balancing the *tridoshas* which is necessary for the body and mind to achieve equilibrium. The purpose of this review is to analyze the role of *thathu jeeva katpam* in *Siddha* aspect. For this review, the relevant contents collected from reputed *Siddha* texts and electronic databases like PubMed, Medline, Google scholar, Research gate etc. Data of the review revealed the type of medicine, adjuvants, and indications on 49 *thathu jeeva kayakatpam*. Among them, 30 (76.92%) were *thathu katpam* and 9 (23.07%) were *jeeva katpam*. In *thathu katpam* 15 (50%) were *chendooram*, 4 (13.33%) were *katpam*, 3 (10%) were *chunnam,* 3 (10%) were *parpam*, 2 (6.66%) were *kalangu,* 1 (3.33%) was *thailam*, 1 (3.33%) was *mezhugu* and 1 (3.33%) was *kattu*. In *jeeva katpam* 5 (55.55%) were mammals, 2 (22.22%) were aves, 1 (11.11%) was reptile and 1 (11.11%) was arthropod. In conclusion, this review further develops the research on *Siddha thaathu jeeva katpam* on systematic preclinical and clinical approach.

Keywords: Preventive, Rejuvenation, Siddha system, *Thathujeeva katpam*

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Abstract ID - 267

Narrative literature review on mud therapy on the treatment of acne vulgaris (*Yuvan pidaka*)

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Acne vulgaris is a common dermatological disease which is caused by an obstruction of sebaceous glands of the face. It is a very frustrating, troublesome, and depressive disease that primarily affects adolescents which can be identified with a wide range of morbidities including physical, social, psychological, and emotional distress. On the other hand, disfigurement of the face of youths may result in severe depression due to the severity of acne. Therefore, they seek more and more new methods and techniques to combat acne and to remove the scars. In the western world, cosmetics rich with antioxidants and stem cells etc. are available as popular trends for combating acne. Even though they are not satisfied with all these products, they prefer natural methods. Over 5000 years before nature care techniques and Ayurveda has been invaluable source of facial care products from unpolluted natural environment. Mud therapy is one of the most effective natural therapeutic modalities instead of herbal ingredients. Mud packs, mud baths are the commonest form of mud therapy used to draw out impurities from the skin, exfoliate dead skin cells, and relax sore muscles reported as beneficial for the treatment of acne. The objectives of this narrative literature review are to explore the utility and effectiveness of mud therapy used in the treatment of acne in Ayurveda. A literature review was conducted on databases such as Pub med, Cochrane etc. on the utility and effectiveness of mud therapy for the treatment of acne. Accordingly, it can be concluded that mud therapy is more effective, safe, easy and cost effective. Thus, the mental health of the patients can be strengthened and social interaction and self-esteem of the patients afflicted with acne can be improved with mud therapy.

Key words: Cost effective, Dermatological disease, Mud therapy, *Yuvana pidaka*.

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Advanced medical & surgical practices in traditional medicine

Abstract ID - 49

Exploring the therapeutic efficacy of the treatments of *Arangala* tradition in fracture management: A case study evaluation

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Fractures often result in substantial pain and a subsequent decline in quality of life. In Sri Lanka, a well-established system of traditional orthopedic medicine exists, wherein practitioners successfully address orthopedic disorders. The present investigation evaluates the efficacy of the orthopedic methods of the *Arangala* tradition in enhancing early functional outcomes following fractures. This was performed via a case study of a 68-year-old male presenting with closed fractures to the right surgical neck of the humerus and clavicle. The therapeutic protocol involved the initial application of herbal oil and poultice, which is composed of the extract of *Bridelia retusa* (keta kela) bark and *Withania sominifera* (ashwagandha) root powder as the main ingredients together with other polyherbal formulations, with concurrent immobilization using bamboo splints over a three-week duration. Subsequently, the regimen was modified to exclude splints for two weeks, followed by a final week of herbal oil application and fomentation. Assessments of motor and sensory functions, quality of life via Quality of Life of International Osteoporosis Foundation (QLIOF) distal forearm fracture questionnaire, activities of daily living via Modified Barthel Index (MBI), and psychological states via Depression Anxiety Stress Scale 21 (DASS 21) were conducted at baseline, during treatment, and upon completion of the treatment course. Post-treatment evaluations, conducted six weeks from the onset, revealed substantial enhancements in the motor function of the right shoulder joint, with sensory functions remaining consistent throughout the intervention period. Non-parametric paired chi-square test results indicated a significant increase in the quality of life ($P<0.001$) and marked reductions in levels of anxiety, depression, and stress ($P=0.01$). Additionally, the patient exhibited significant improvements in the performance of daily living activities ($P=0.008$). The findings of this study underscore the efficacy of the orthopedic methods of the *Arangala* tradition in facilitating early functional recovery post-fracture, supporting their potential role in comprehensive fracture management and treatment strategies.

Keywords: *Arangala* tradition, Fractures, Functional outcomes, Traditional orthopedic medicine

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Abstract ID -127

An observational case study on combined Ayurvedic management of *Suryavarta* W. S. R. to Frontal Sinusitis

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Suryavarta is one of *Shiroroga* characterized by a headache which starts in the morning and increases as the day passes, becomes maximum at noon and subsides with sunset. The headache which starts in *Akshi* (eyes) and *Bhru* (eyebrows) is a *Vata-Pitta* predominance *Tridoshaja Shiroroga* according to *Acharya Sushruta*. The symptoms of *Suryavarta* mostly resemble frontal sinusitis. Clinical features of frontal sinusitis are headache, tenderness over the frontal sinus, nasal discharge, loss of smell and nasal blockage. *Nasya* is mentioned to be the prime treatment modality in *Suryavarta* according to *Acharya Sushruta*. Sinusitis is a major health care issue affecting approximately 10% of the world population. Treatments in present practice show minimal desired effect with many adverse effects. There are many effective and simple remedies for *Suryavarta* without side effects mentioned in Sri Lankan traditional medical books. The main objective is to evaluate the efficacy of an Ayurvedic intervention in the management of *Suryavarta*. 34 years old male presented at the *Shalakya* outpatient department (OPD) of National Ayurveda Teaching Hospital, Colombo. He had a known history of headache of the forehead area for 5 months which starts from eyes and eyebrows and became severe at noon with forehead tenderness. The patient was treated for 14 days and followed for another 2 weeks. This treatment regimen was found from Sri Lankan traditional medical book '*Talpathe Piliyam*'. *Siddhiguruadi Kashaya* (decoction) including dry ginger, long pepper (*Tippili*) and bael (*Beli*) roots was given for 14 continuous days. *Suduloonu-Rathuloonu Nasya* (Errhine) including garlic and red onion was done for first 7 days continuously. Before *Nasya*, *Pottani Sweda* (Bolus fomentation) was done. After *Nasya*, *Dhoomapana* (Medicated smoking) was given with powdered dry drugs. Ingredients of *Kashaya* have *Katu*, *Tiktha*, *Kashaya* and *Madhura Rasas* and *Laghu*, *Snigdha*, *Theekshna* and *Ruksha Gunas*. Therefore, they have *Thridosha Shamaka* properties. Signs and symptoms were significantly reduced within 2 weeks. According to our observational study, selected treatment regimen was simple and effective.

Keywords: *Dhooma pana*, Frontal sinusitis, *Kashaya*, *Nasya*, *Suryavarta*

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Abstract ID -142

Evaluation of the efficacy of pathyākshadhātree kashāya, nirgundi nasya, and trikatuādi kavala on kaphaja shirah shoola – A case study

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Ayurveda mentions that *kaphaja shirah shoola* arises due to the vitiation of *kapha dōsha*. *kaphaja shirah shoola* can be correlated with chronic sinusitis. It was decided to observe the effect of *nasya karma* followed by oral administration of *pathyākshadhātree kashāya* and gargling using *trikatuādi kavala*. Treatment modalities used in *kaphaja shirah shoola* were collected from authentic Ayurvedic and traditional medical books, published papers, and research journals. The selected patient was thoroughly examined, and the severities of the symptoms were recorded using a specially prepared proforma. *Nasya karma* was conducted by using *nirgundyādi oil*. Before the instillation of *nasya*, *abhayanga* of *nirgundyādi* oil to the face, forehead, and neck area and mild *swēda* was given using *nikādi pottaniya* for 07 consequent days. After conducting *nasya karma*, the patient was made to follow *trikatuādi kavala* as *pashchāth karma* of *nasya karma*. From seven days to 21 days, the patient was treated with *pathyākshadhātree kashāya* orally and follow-up was 14 days. After completion of *nasya karma* and *trikatuādi kavala*, post-nasal discharge and itching inside the ears were completely (100%) relieved. 25% relief was observed in mild pain in the head 50% relief was observed in heaviness of the head, swelling around the eyes, mild pain occurring in the daytime, severe pain at night and drowsiness. 75% relief was observed in fullness in the head and anorexia. After completion of the entire treatment, it was observed that complete relief (100%) of all the symptoms was observed. *nasya karma* eliminates vitiated *kapha dōsha*. Ingredients of *pathyākshadhatree kashāya* and *trikatuādi kavala* are also beneficial for alleviating vitiated *kapha dōsha*. It was concluded that the conduction of *nasya karma* using *nirgundyādi* oil followed by internal application of *pathyākshadhātree kashāya* and *trikatuādi kavala* is beneficial in the treatment of *kaphaja shirah shoola*.

Keywords: *Kaphaja shirah shoola, Nasya karma, Pathyākshadhātree kashāya, Trikatuādi kavala*

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Abstract ID -145

Formulating herbal under-eye cream utilizing selected *varnya gana dravya* from *Charaka Samhita*

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Ayurveda promotes inner and outer beauty through natural skincare and lifestyle practices tailored to individual needs. Under-eye darkness poses a significant challenge among common eye concerns, caused by various factors including lifestyle stress and ageing. The herbal under-eye cream offers numerous benefits, including imparting a radiant glow, minimizing side effects, and catering to all skin types while reducing damage and irritation. Formulated with ingredients like *rakthachandana*, *manjistā*, and *yashtimadhu* selected from *Charaka Samhitā*'s *varnya gana*, along with virgin coconut oil, shea butter, beeswax, aloe vera gel, liquid germall plus, and rose essential oil. *Rakthachandana* removes pigmentation spots and scars, while *manjistā* evens skin tone and rejuvenates. *Yashtimadhu* improves complexion and inhibits melanin deposition. The base ingredients offer additional benefits like immune support, collagen production, and moisture retention, ensuring comprehensive skincare with a natural touch. The methodology involved obtaining dried coarse powder of *rakthachandana*, *manjishtā*, and *yashtimadhu*, weighing 10 g, and then boiling them in 960 mL of water until the volume was reduced to 1/4 (240 mL). After filtering and separating the water part, virgin coconut oil (15 g), beeswax (5 g), and shea butter (2 g) were mixed and double-boiled until melted. Next, the decoction mixture was combined with the double-boiled mixture and beaten for 10 minutes. Aloe vera gel (2 g) was added and beaten for 5 minutes. Then, 02 drops of preservative and 02 drops of fragrance were added to the mixture and beaten again for 5 minutes. Finally, the under-eye cream was produced using selected *varnya gana dravya* from *Charaka Samhitā*. The selected drugs predominantly exhibit *tikta*, *kashāya*, and *madhura rasa*, along with *guru*, *rūksha*, and *snighdha guna*, *sheetha vīrya*, and *madhura vipāka*, as well as *chakshushya* and *pittahara prabhāva* properties. These pharmacological and pharmacodynamic properties validate the efficacy of the cream as a cosmetic product.

Keywords: Ayurvedic skin care, Herbal under-eye cream, Natural beauty, Radiant skin, Traditional medicine

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Abstract ID - 157

Exploring the efficacy of external applications for *arditha* in Ayurvedic and Sri Lankan traditional medicine: A pharmacodynamic analysis

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Arditha, classified as a vexing *vāta vyādhi* in Ayurveda, presents as a facial affliction attributed to the accumulation of vitiated *vāta*. Western medicine parallels *arditha* with facial paralysis, attributing it to the dysfunction of the facial nerve, leading to facial muscle immobility. This research endeavours to scrutinize *arditha* through the lens of Ayurvedic, traditional, and modern medical paradigms, exploring external application formulae elucidated in ancient texts such as *Susrutha Samhitā*, *Charaka Samhitā*, Ashtanga *Hridaya Samhitā*, as well as *Thalpathē Piliyam* and *Kanda Vaidya Grantha*. Additionally, the study seeks to analyze these identified external application formulations to discern their pharmacodynamic and pharmacokinetic properties, shedding light on their therapeutic efficacy. Emphasis is placed on extracting external application formulations delineated in ancient Ayurvedic texts, followed by an analysis of their pharmacodynamic and pharmacokinetic characteristics, drawing insights from established principles of Ayurvedic pharmacology. The gathered literature identified 31 external application formulations for *arditha*, with *pralēpa* emerging as the predominant preparation type. Analyzing the pharmacodynamic properties revealed a distribution of *rasa, guna, veerya*, *vipāka*, and *dōsha karma*, elucidating the therapeutic potential of these formulations. The formulations evaluated in the study demonstrated proportions of *katu rasa* (35.7%), *ushna veerya* (82.6%), and *madhura vipāka* (45%), indicating their efficacy in alleviating *vāta dōsha* and addressing *arditha*. These findings highlight the therapeutic potential of formulations enriched with *katu, madhura, theekshna, snigdha*, and *ushna* properties, effectively mitigating *vāta dōsha*, a primary pathogenic factor in *arditha*. The analysis of pharmacodynamic properties revealed that external application formulas mentioned in traditional texts predominantly contain *katu rasa*, with lesser proportions of *theekshna* and *madhura rasa*. *Laghu guna* was predominant, while *ushna veerya* and *katu vipāka* were the most prominent among the analyzed components. These insights underscore the importance of traditional treatments and call for continued investigation into their efficacy for *arditha* management.

Keywords: Ayurveda, *Arditha*, External applications, Pharmacodynamic analysis, Sri Lankan traditional medicine.

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Abstract ID -169

Evaluating *Hibiscus sinensis* flower stalk scraping in pterygium management: A Sri Lankan indigenous medical approach

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Pterygium, a prevalent ocular condition, adversely affects visual functionality, necessitating the development of efficacious treatments. This case series investigated the effectiveness of *Hibiscus sinensis* flower stalk scraping, a traditional treatment from the Sri Lankan indigenous medical system, aimed at offering alternatives with potentially lower recurrence rates. Conducted at the Shalakya clinic within the Ayurveda Hospital for Prevention of Kidney Disease, Bathalayaya, the study involved 12 patients diagnosed of pterygium (4 males, 8 females, ages 44-70) adhering to international diagnostic criteria. Over December to January 2024, participants received four *Hibiscus sinensis* flower stalk scraping treatments, with six-day intervals. Outcomes, evaluated over one month, included recurrence rates, symptom relief, adverse reactions, and patient satisfaction. Given the non-invasive nature of the treatment and historical precedence in Sri Lankan indigenous medicine, formal ethical clearance was bypassed, aligning with local traditional treatment guidelines. Post-treatment reports indicated subjective symptom and visual acuity improvements, without significant adverse effects. Preliminary results suggest a notable decrease in recurrence rates compared to standard treatments, underlining the potential effectiveness of this method. The practice of *Hibiscus sinensis* flower stalk scraping within Sri Lankan indigenous medicine presents a promising alternative for the management of pterygium, demonstrating initial safety and efficacy. This success highlights the importance of integrating indigenous medical practices into contemporary research. Future studies should aim at standardization of the treatment protocol and undertake randomized trials for comprehensive evaluation of the efficacy.

Keywords: Pterygium, *Hibiscus sinensis*, Sri Lankan indigenous medicine, Visual acuity, Traditional medicine.

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Abstract ID -177

Assessment of *agnikarma therapy* for *ama vata* (rheumatoid arthritis) management in a female cohort: A case study

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Rheumatoid Arthritis (RA), a chronic autoimmune condition affecting approximately 0.5% to 1% of the global population, leads to significant morbidity due to joint inflammation, pain, and deformity. Conventional treatments often yield mixed results and may incur long-term side effects, highlighting the need for complementary approaches like Ayurveda. This study evaluates the efficacy of *Agnikarma* (thermal cauterization), an Ayurveda technique involving the targeted application of heat to alleviate pain, in managing *Ama Vata*, the Ayurveda equivalent of RA, focusing on symptomatic relief. Ten female patients, aged 25-40, presenting with RA symptoms such as oedema, stiffness, and severe joint pain, were selected from the Kidney Research Ayurveda Hospital, Bathalayaya. Inclusion criteria were based on a clinical diagnosis according to international RA guidelines and the absence of conventional treatment for the past month. The study, avoiding invasive diagnostic methods, relied on symptomatic assessment for the evaluation of the efficacy. Treatment involved six *Agnikarma* sessions at four-day intervals, with symptomatology monitored over two months. The success of the intervention was measured by observable reductions in severity of the symptoms and the absence of recurrence post-treatment. Significant symptomatic improvement without recurrence indicates the potential of *Agnikarma* as an effective, sustainable treatment modality for *Ama Vata*. Given the prevalence of RA and the limitations of conventional treatments, these findings underscore the importance of integrating Ayurveda practices like *Agnikarma* into broader therapeutic strategies. Future research should include larger sample sizes and control groups to further validate the efficacy of *Agnikarma* and explore its potential to fill gaps in current RA management approaches, emphasizing holistic care and patient-centered outcomes.

Keywords: *Ama Vata*, Rheumatoid arthritis, *Agnikarma*

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Abstract ID - 179

Study of modalities used by 3 indigenous medical generations in *Panamura* division for the treatment of fractures

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Sri Lanka has its own indigenous medical system and different generations of indigenous medical practitioners treated patients using their own herbal medicinal combinations. *Panamura*, is in Ratnapura district, Sri Lanka and indigenous medical practitioners there treat orthopaedic diseases with a great success. The main objective of this research is to study the similarities and differences between different drug combinations used by three different generations of indigenous medical practitioners and their effectiveness for bone fractures. With the approval of the Ethical Review Committee of the faculty, practitioners of the most renowned three medical lineages in *Panamura* were interviewed and information on their medicinal prescriptions for fracture (*Bhagna*) therapy were collected and analyzed. The literature study focused on the "*Rasa, Guna, Viraya, Vipaka"* characteristics of ingredients in above formulations. Three different generations used three different herbal medicinal formulations: *Pattu, Mallum* and *Thaila* in treating bone fractures. Time taken to heal the bone fracturs are approximately similar in all three methods. *Phyllanthus emblica, Tinospora cordifolia, Asparagus falcatus, Erythrina variegata* were the common ingredients found in all 3 formulations. Majority of drugs has shown *Tikta, Kashaya, Katu Rasa* and *Laghu and Ruksha guna*. *Ushna veerya and Katu vipaka* which pacify the vitiated *Vata doshas* and consequently the *Asthi dhathu*. It was noticed that they do not consider the pharmacological properties of substances and classify drugs as *Chandra ganaya* and *Surya ganaya*. *Chandar Gana* drugs are used to loosen joints in cases of bone stiffness, joint stiffness; *Surya ganaya* drugs speed up bone healing and used in fracture therapy. Although the form of medicinal formulae used by different generations for the same *bhagna* are different, there are similarities in the properties of the ingredients used to make those medicines. To mitigate the impact of ingredient shortages, doctors can intelligently suggest alternative drugs with similar properties. This approach ensures continuity in treatment efficacy within traditional medicine despite environmental challenges. It can be concluded that three different medicinal formulae used by the three indigenous medical generations have similar characteristics and effectiveness in treating bone fractures.

Keyword: Chandra ganaya, Orthopedic therapy, panamura, Traditional medicine, Surya ganaya

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Abstract ID -239

Analytical review of eye-foot axis in *Ayurveda* and Sri Lankan traditional medicine

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The theory of eye-foot axis is mentioned in *Ayurveda* and Sri Lankan traditional medicine. However, it is lesser known and minimally elucidated. Thus, the objective of this review was to highlight and explore the theory of the eye-foot axis in *Ayurveda* and Sri Lankan traditional medicine. For this purpose, relevant textbooks and manuscripts of *Ayurveda*, Sri Lankan traditional medicine and modern medicine were analytically reviewed. As per *Charaka Samhita*, *Drikprasada* is one benefit of *Pada Abhyanga*. In addition, *Charaka Samhita* declares *Chakshushya* as a benefit of wearing footwear. *Bhavaprakasha* categorizes excess barefoot walking and exposure of feet to extreme heat as a cause of eye diseases. According to manuscripts of Sri Lankan traditional medicine, specifically the *Rajaushadhasaraya*, many medicaments for eye diseases such as cataract are to be applied on the big toe of the foot as well. Furthermore, these manuscripts state the act of barefoot walking on fresh grass or herbs, as beneficial to the eyes. Moreover, Sri Lankan traditional physicians recommend the use of controlled pressure on the contralateral big toe as a home remedy for eye twitching. The basis of this eye-foot axis is described in *Ashthangahridaya Samhita* as the presence of two *Shira* in the middle part of each foot connecting them to the eye. Therefore, applications and effects on the foot can influence the eyes. According to modern medicine, the balance of the body is brought about by the conglomeration of vision, vestibular sensation, and proprioception primarily from the foot. Hence, these organs act as an integrated system in achieving correct balance and posture. In addition, an abnormality of one organ may cause overexploitation of the others. Moreover, eye-foot coordination is an essential factor for walking. Thus, the theory of the eye-foot axis of *Ayurveda* and Sri Lankan traditional medicine is corroborated with modern scientific evidence.

Keywords: *Ayurveda*, Eye-foot axis, Sri Lankan traditional medicine

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Abstract ID -271

Role of *Rakthamokshana* in the management of skin rash: A case study

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Even though the leech is a beastly animal to some people, it is one of the most helpful creatures for Ayurveda treatment procedure especially under *Rakthamokshana* (Bloodletting). *Rakthamokshana* is generally of two types, *Shastra visravana* and *Anushastra visravana.* Under the categorizations of *anushasthra visravana* leech therapy is identified as one of the most effective methods. In this case study, a 26 years old young male patient working as a businessman is presented with the symptoms of skin discoloration, mild exudates, itching and rashes in his both upper limbs lower region out spread in medial sides. After proper examination, diagnosis was done, and treatment protocol was scheduled with *Antarparimarjana chikithsa* (oral medication) as well as *Bahirparimarjana chikithsa* (external treatments) including bloodletting for one month duration within four visits. After 2 times of *Rakthamokshana* treatments with medicinal leeches progressive healing of the skin rash was observed. Except the small patch where the leech had been placed, all other visible symptoms disappeared within one month. During the follow up period of another one month, the patient completely recovered. The patient was advised to avoid causative factors (*Nidhana parivarjana*). Lifestyle modification was introduced with Ayurveda *Dinacharya*, *Ahara vidhividhana*, *Sadvruttha* and *yoga* exercises for preventing recurrence. This case study provides evidence that within four visits skin rash totally recovered after administration of leech therapy twice, without any adverse effects. Therefore, ancient concept of practicing leech therapy according to standard procedures can be used in the management of skin rashes.

Key words: *Anushastra visravana,* Leech therapy *Rakthamokshana,* Skin rashes

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Eco-tourism, yoga, and wellness

Abstract ID - 03

Transforming Habarana, Sri Lanka and the surrounding area as a destination for wellness tourism

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In the rapidly evolving landscape of global tourism, the pursuit of wellness has emerged as a significant trend, with travellers increasingly seeking destinations that offer opportunities for rejuvenation and holistic well-being. Against this backdrop, Habarana, situated in the captivating landscapes of Sri Lanka, presents a compelling case for development as a wellness tourism destination. This study investigated the untapped potential of Habarana and its surrounding areas to cater to the burgeoning demand for wellness-focused travel experiences. Drawing upon extensive primary data collected from 15 interviews with key industry stakeholders and field observations, this research sheds light on the existing infrastructure and amenities in the region, which lay the foundation for the development of wellness tourism. The findings underscore the rich tapestry of accommodations, attractions, and activities available in Habarana, all of which contribute to its appeal as a wellness destination. However, amidst these opportunities lie significant challenges, including inadequate infrastructure, regulatory constraints, and financial limitations, which threaten to impede progress in this sector. Despite these challenges, the study proposes a series of strategic recommendations aimed at overcoming barriers and unlocking the full potential of Habarana as a wellness tourism hotspot. These recommendations include initiatives to enhance existing wellness offerings, collaborate with governmental bodies to streamline regulations and policies, and foster community engagement to ensure sustainable development. Furthermore, recognizing the importance of international collaboration and targeted marketing strategies, the study advocates for tailored approaches to attract wellness travellers from diverse geographical regions. By embracing these recommendations and addressing the identified challenges, Habarana and its surrounding areas can position themselves as premier destinations for wellness tourism, thus reaping the economic benefits while nurturing the well-being of both visitors and the local community alike.

Keywords: Destination promotion, Harabana area, Tourism development, Wellness tourism

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Abstract ID - 04

The potentials and challenges of promoting eco-tourism concept as a new revival of tourism industry in Sri Lanka

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Ecotourism has become a popular tourism category in the world. Tourists are fond of ecotourism because of the freedom and opportunities they get to explore nature. As a tourist destination, Sri Lanka is also famous for its natural beauty. Even though resources and the customer base are already available, Sri Lanka does not take the maximum use of its natural resources for tourism as an industry. In such a background, this study was conducted to find whether ecotourism could be promoted in Sri Lanka as a viable industry. Study was divided into three specific objectives. Firstly, to investigate the current trends in Sri Lankan tourism industry with special emphasis on potential for ecotourism sector. Secondly, to understand key success factors of ecotourism industry in Sri Lanka and finally to recommend policies and strategies to promote ecotourism segment as a viable sector in Sri Lanka. Qualitative research approach was employed, utilizing semi-structured, in-depth interviews and thematic analysis of data, supplemented by tourist reviews and secondary data. A qualitative research approach was used due to the exploratory nature of this study. 'Thematic Analysis' was used as the primary tool to analyze the data collected through semi structured, in depth interviews from multiple sources. Tourist reviews and secondary data were also analyzed to strengthen the findings. With respect to the first objective, trends such as richness in diversity of the tourists, desire to discover real Sri Lanka, value for freedom and ecotourism experience, concern about the environment and outlays and recognition of Sri Lanka were identified. As per the statistical data as of July 2023, the share of global travelers looking for accommodation with impressive sustainability innovation was over 50%. Key success factors were, ecotourism sites shall be close to nature or cultural attractions, ecotourism should be environmentally sustainable. As per the third objective, policies and strategies to promote ecotourism as a viable industry in Sri Lanka were suggested. Introducing minimum standards for ecotourism parks, maintenance of ecotourism parks, environmental sustainability of ecotourism, government concessions for ecotourism and marketing and promotional strategies for ecotourism are paramount.

Keywords: Eco tourism, Promote, Potentials and challenges, Revival

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Abstract ID - 29

Buddhist training and development for healthy living of humans: Self-control

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Present era, emotional turmoil, conflicts, and unsustainable practices present formidable hurdles to both individual and global well-being. This research examines the Buddhist analysis of emotions as an alternative approach that holds promise for fostering harmony and sustainability across various aspects of life. Main objective was to delve into the training and development underpinning the Buddhist analysis of emotions. This includes the understanding of wholesome and unwholesome mental states, the three poisons of greed, hatred, and delusion, and the intricate interplay between afflictive and non-afflictive emotions. Secondly, to explore practical applications of Buddhist insights in promoting harmony and sustainability in personal lives, relationships, and broader society. A qualitative methodology was employed, drawing from canonical Buddhist sources like discourses from the Pali canon and contemporary scholarly perspectives on Buddhism and emotions. Buddhist analysis of emotions reveals that emotions are conditioned mental states, subject to impermanence. By training mindfulness, compassion, and wisdom, individuals can skillfully transform afflictive emotions into more wholesome states of mind. This transformation empowers individuals to respond to challenges with enhanced clarity, empathy, and skill, that foster harmony in their personal lives and relationships. Training of emotional intelligence through Buddhist practices contributes to sustainable decision-making, ethical conduct, and the promotion of social well-being. Buddhist philosophy recognizes that emotions are spoiled by the fundamental ignorance about the true nature of reality. Cultivating insight and wisdom allows individuals to gain a deeper understanding of the impermanent and interdependent nature of emotions, fostering a non-attached and compassionate relationship with their emotional experiences. This allows for harmonious and sustainable engagement with the world. Buddhist practices also emphasize the significance of interconnectedness and interdependence, instilling a sense of unity and responsibility toward the well-being of all beings. This holistic perspective promotes sustainable practices prioritizing the long-term health and harmony of the planet.

Keywords: Buddhism, Emotions, Self-control, Training, Development.

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Abstract ID - 50

The effectiveness of listening to *Girimananda sutta* for reducing pain and fears of non-communicable diseases

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History and process of reciting *pirith* have been explored in previous studies. The purpose of reciting *pirith* is to protect the living being from all disasters, all pains and all the fears as mentioned in invitation of *pirith*. The *Girimananda sutta* contains '*Dasa sangna'* and ends up with mindfulness breathing exercise, called *Anapanasathi*. *Girimananda thera* was cured after discoursing in virtue. Noncommunicable diseases are alarming and cause tremendous pain and suffering in patients. Opioid analgesics oral administration and invasion are used for cancer palliative care in Sri Lankan health sector. The objective of this study was to determine the healing and palliative functions of *pirith* in healing and promoting physical and mental health issues. This is a quasi-experimental intervention pilot study. The sample consisted of 35 patients afflicted with noncommunicable diseases (cancer, hypertension, diabetes, asthma) who were being treated in the Gampaha district. Low frequency *pirith* sounds (<150Hz) were heard by using a headphone and meaning of *pirith* was displayed in the screens simultaneously. Pain relief, reduction of stress level in the subjects were assessed after exposing them to repetitive *pirith* blessing sounds and vowel sounds. The pain was assessed using a subjective pain assessment scale which rated 0-10. Mood Baro -meter in which patients were asked to rate their mood in a visual analogue was used to gauge the pain and stress reduction. Results showed that there was a significant reduction (60%) of subjective pain after the intervention. Therefore, *pirith* blessing could be identified as a noninvasive, nonpharmacological, low-cost and palliative care therapeutic tool. It is believed that recital of *pirith* verses is soothing to the nerves and induce mental and physical balance using the six senses of humans.

Keywords: *Girimananda sutta*, Mental and physical balance, noncommunicable disease, reduction of pain and fear in palliative care, Sri Lankan Buddhist rituals

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Abstract ID - 54

Exploring botanic garden tourism as a catalyst for urban wellbeing

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Modern cities are experiencing many urban challenges. They affect the well-being of city people. Botanical gardens as green spaces provide opportunities for healthy living. The major botanical gardens at Hakgala, Henarathgoda, Peradeniya, Avissawella, and Hambantota are managed by the Department of National Botanical Gardens Sri Lanka. The research carried out at Seethawaka Wet Zone Botanical Garden as a case study analysed the intrinsic well-being factors of people. Escapism, rest and relaxation, self-esteem, prestige, health and fitness, adventure, social interaction, benefits, and interests were the factors that evaluated with park visitation. Using a positivist approach with a deductive type of reasoning, this cross-sectional study employed a five-point Likert scale questionnaire within a case study research strategy to examine the impact of botanic garden tourism on the healthy living of city people. Total data were collected from 379 respondents using the convenience sampling method. The above-mentioned independent variables were measured via an 18-item, five-point Likert scale questionnaire. High KMO, Bartlett's test value, and Cronbach's alpha value ensured valid and reliable data for proper analysis of the study. As per the study objectives, the findings emphasize the significant positive impact of intrinsic well-being factors on people's park visitation. This research study recommended botanical garden-related tourism activities as catalysts for urban well-being in Sri Lanka. Relevant stakeholders, including government organizations, recreational park authorities, travel agencies, hotels, and other tourism service providers, can focus on this area as a future potential for the sustainable wellness tourism industry.

Keywords: Botanic garden tourism, Park visitation, Wellness tourism, Urban wellbeing

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Abstract ID - 60

Empowering women through eco-tourism: Insights from Sinharaja rainforest, Sri Lanka

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In recent decades, tourism has emerged as a promising avenue for women's empowerment, offering opportunities for economic, social, and environmental advancement. This research explores the role of eco-tourism in empowering women, with a focus on Sinharaja rainforest in Sri Lanka. By examining eco-tourism activities within the Sinharaja rainforest, this study seeks to uncover its influences on the lives of women and broader implications for gender equality and sustainable development. Data was collected from observations and twenty interviews conducted with respondents from tourism and non-tourism related industries, selected using a purposive sampling method. Data was analysed using thematic data analysis. Positive economic outcomes for the women from eco-tourism activities, such as income generation, entrepreneurship opportunities and opportunities to development their skills were revealed as positive outcomes. Additionally, it was revealed that there are social empowerment opportunities for women including enhanced decision-making power, access to education and leadership roles within communities. Further, it was revealed that women living in the area where eco-tourism related activities are conducted play a major role in environmental stewardship, highlighting their contribution to the biodiversity conservation and sustainability of resource management in the study area. From a gender-sensitive lens, this study evaluates the extent to which eco-tourism activities in the Sinharaja rainforest promotes inclusivity, equity, and participation of women in the decision-making process. The findings show that eco-tourism in the area has played a favourable role in the empowerment of women, boosting economic self-reliance, social cohesion, and environmental awareness among female stakeholders in the tourism sector in the area. However, it was identified that there is a need for interventions for empowerment of women, because of some challenges such as limited access to resources, gender based discrimination, and unequal power dynamics. Recommendations include initiating gender-responsive policies, providing capacity-building opportunities, and promoting women's leadership in eco-tourism initiatives to maximize the benefits for both women and the environment.

Keywords: Eco-tourism, Gender equality, Sinharaja rainforest, Sustainable development, Empowerment of women

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Abstract ID - 63

Overcoming challenges for sustainable ecotourism: Evidences from the Southern province, Sri Lanka

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Ecotourism, a type of responsible travel focused on preserving nature and benefiting local communities, has gained popularity in Sri Lanka's tourism industry in the past few decades. Amidst a tourism boom, the country grapples with striking a balance between ecological preservation and economic advancement. Therefore, there is a need to investigate the challenges and barriers which blocks the sustainable development of ecotourism in the country. This study seeks to identify the barriers hindering the expansion of ecotourism and propose strategies for sustainable development. Data was collected through literature, interviews with twenty stakeholders who were selected purposively, and field observations conducted in the ecological environments in the southern coastal belt. Gathered data was analysed using thematic analysis. Study reveals the areas susceptible to environmental issues due to its vulnerabilities, limitations and inabilities of the government institutions, insufficient financial resources, and human activities. Despite efforts to promote ecotourism, inadequate infrastructure and operational challenges are identified. To address these issues, recommendations include enhancing financial support, implementing collaborative governance structures, improving disaster preparedness and community awareness about the conservation of the environment. These measures aim to boost environmental conservation efforts, enhance visitor experiences, and ensure the long-term viability of Sri Lanka's ecotourism industry. In conclusion, Sri Lanka stands at a critical stage in its ecotourism development, with significant potential for growth but faced with substantial challenges. By adopting a holistic approach to overcome these obstacles and implement sustainable practices, Sri Lanka can utilize ecotourism as an avenue for economic prosperity and environmental preservation. Through concerted efforts and effective implementation of the recommendations, Sri Lanka can position itself as a leading destination for sustainable and responsible ecotourism.

Keywords: Eco tourism, Environmental conservation, Sustainable development, Tourism challenges, Tourism development

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Abstract ID - 64

Balancing conservation and community empowerment: An exploration of eco-tourism dynamics in Sri Lanka's protected area

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Ecotourism, as a sustainable form of tourism, plays a significant role in promoting environmental conservation and community empowerment. With the growing popularity of ecotourism, there is still gaps in understanding its impact on local communities and broader sustainable goals. Thus, this study focuses on the eco-tourism activities surrounding Hurulu Eco Park, Minneriya National Park, Gal Oya National Park and Kaudulla National Park in Sri Lanka, highlighting the significance of these areas for rich biodiversity and local livelihoods. This study assessed the role of eco-tourism activities on local communities surrounding the selected national parks while exploring the perceptions and attitudes of stakeholders towards eco-tourism and identified the challenges and opportunities associated with sustainable eco-tourism practices in the study area. The research employed purposive sampling technique to collect data through fifteen semi-structured interviews with participants representing the government sector, tourism, and non-tourism sector for qualitative analysis. Data was analyzed using thematic data analysis. The study revealed several key findings; firstly, it was found that eco-tourism activities have brought economic benefits to the local communities, including employment opportunities and income generation. Secondly, stakeholders from different sectors have varying perceptions of eco-tourism, with some highlighting its positive impacts on biodiversity conservation and community development, while others raise concerns about environmental degradation and cultural commodification. Thirdly, it was found that challenges such as inadequate infrastructure, limited community involvement, and lack of regulatory frameworks hinder the sustainable development of eco-tourism in the study area. In conclusion, the research underscores the importance of adopting a holistic approach to eco-tourism development that balances environmental conservation with community empowerment. Recommendations include enhancing stakeholder collaboration, promoting sustainable tourism practices, and strengthening regulatory mechanisms to ensure long-term viability of eco-tourism initiatives.

Keywords: Biodiversity conservation, Community empowerment, Eco-tourism, Sustainable tourism

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Abstract ID - 71

The importance of developing indigenous psychology for the mental well-being of Sri Lankan people: A literature review

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Psychology mostly engages with Western concepts. Because of that, there were many complications when it is adapted to different cultures. It should be culturally sensitive and indigenously validated for the applicability for the psychological well-being of people. However, indigenous psychology (IP) is still developing in Sri Lanka. The objective is to explain the importance of developing IP in Sri Lanka. A systematic search was conducted on electronic databases to investigate relevant literature that was published with blending psychology and indigenous medicine-related culture, methods, and practices. Twenty articles that can be accepted as scientifically or indigenously were summarized. The literature indicate that all illnesses are based on mental imbalances, according to Asian indigenous medicine. Globally, cultural adaptation of psychology as an indigenous subject is very important for mental well-being. In the Asian region, philosophical beliefs more than scientific information were generally used in indigenous medicine. It is difficult to prove the effectiveness of those practices only using Western scientific methods. The whole system is mainly based on experiences, culture, and beliefs as part of traditions. A significant percentage of people in India seek traditional healings such as Ayurveda, before Western medicine. In Sri Lanka, a considerable percentage of people who seek traditional treatments afflicted with psychological imbalances are treated in the private sector. The Sri Lankan indigenous sector thrived before colonial times and used medical traditions such as Ayurveda, *Siddha*, *Unani*, and *Hela*. Currently, following scientifically validated indigenous medical concepts positively affects mental well-being as well as other physical well-being. In conclusion, the study addressed the importance of developing IP for the mental well-being of Sri Lankan people. As a suggestion, further in-depth studies are needed to develop IP in a Sri Lankan context.

Keywords: Cultural sensitivity, Indigenous psychology, Mental well-being

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Abstract ID - 72

Exploring high-end wellness tourism offerings in Sri Lanka for the luxury European market

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The Covid-19 global pandemic led many Europeans to focus on their mental wellbeing. They became the major contributors to wellness tourism trips in the world. Sri Lanka is an island destination enriched with cultural and ecological diversity. The history of "*hela wedakama*," encompasses *Ayurveda*, *Yoga*, *Yunani*, *Sidda*, and homeopathy leveraging significant opportunities to create and refine luxury wellness products tailored to attract European tourists to the region. Though indigenous knowledge systems and medicinal treatments are widely acknowledged, there is a gap in comprehensive market understanding. The absence of competitive analysis and insufficient market research on luxury market preference is a notable gap that has been identified. Product identification according to luxury wellness market preference is important for the development of the country than counting the number of annual visits to Sri Lanka. This work aimed to identify luxury wellness market products that are suitable for European tourists. The qualitative study adopted a grounded theory research design, employing purposive sampling at first and snowball sampling for data collection through in-depth and focus group interviews. Thematic analysis was used to analyze the data. Peer debriefing and triangulation were carried out to maximize trustworthiness and interviews were conducted within the ethical limits. A total of 15 interviews represented travel agencies and wellness hotels around Sri Lanka. Physical, emotional, preventative, and spiritual wellness offerings were the themes derived from the data. Results revealed that destination spas and hotels, wellness retreats, *Yoga* and Pilates, martial arts, saunas, meditation, hot springs, thermal baths, *ashrams* for *reiki* and Ayurveda, and medical treatments are the niches to be filled. This research provides direction to hoteliers, travel agencies, the national government, and national tourism organizations to address the niches to establish a sustainable wellness tourism industry in Sri Lanka.

Keywords: European tourists, Indigenous knowledge systems, Luxury wellness products, Phenomenological research, Wellness tourism

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Abstract ID - 77

Investigating the obstacles to establishing dementia-friendly health and wellness facilities in Sri Lanka

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Dementia is a global health challenge. Within wellness tourism research, the psychosomatics of people, quality of life paradigms, and well-being are the fundamentals. Dementia patients are a group of visitors who need special kinds of wellness offerings to enjoy the visit. This research examines a hitherto neglected area of research to examine the barricades to create dementia-friendly wellness destinations in Sri Lanka. Existing research suggests a time-space compression occurs as people with dementia see their condition progressively worsen. Dementia patients are not catered to by wellness tourism although wellness is a holistic dimension. To date, the contribution of wellness tourism to the experience of travelers afflicted with dementia remains largely neglected. As this is exploratory research, primary data from 25 in-depth interviews were collected from care givers of dementia patients and their families employing the snowball sampling technique. Inductive thematic analysis was undertaken to provide in-depth details on the views of the respondents. Three key themes emerged as barriers to creating a dementia-friendly wellness destination in Sri Lanka: people, structure, and resources. The results revealed that Sri Lanka needs to have a more comprehensive lens on people with cognitive impairments when creating wellness destinations. To become a holistic wellness destination, all-inclusive tourism is a must. A wellness destination needs to be more advanced to deliver services to visitors with illness and without illness. To offer a setting conducive to travelers with dementia, a friendly wellness destination must be capable of yielding mental benefits. Sri Lanka needs to highlight the all-inclusive travelers in their holistic wellness plan. The theoretical implications of this research benefit scholars, wellness resorts, and families with dementia patients to plan their vacations.

Keywords: Dementia-friendly, Holistic wellbeing, Psychosomatics, Wellness destinations

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Abstract ID - 80

The potential of yogic intervention for the promotion of holistic health in wellness tourism

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The wellness seeker is looking to enhance health holistically. Catering to the needs of wellness seekers, retreats offer numerous interventions to promote well-being. These interventions enhance the wellness of the seekers as a combinatorial approach rather than a holistic approach. However, the wellness seekers are looking towards having a lifetime experience toward promoting and sustaining their wellbeing. Since the experience of wellness is not bound to the experience acquired in the wellness retreat, there is a need to utilize or transform yoga as a holistic approach to health promotion in wellness tourism. Through wellness experience the wellness travellers expect to promote mental wellbeing and experience the conscious. The objective of the study was to identify the holistic experience expected by wellness seekers and transform yoga intervention practice to meet the demands of the wellness seekers. This is a qualitative study and primary data collection was done by interviewing twenty foreign travellers staying in retreats in various geographical locations. The gathered data was analysed through thematic and context analysis methods. Some travellers have a lifelong approach to yoga to cope with their daily life challenges or to refresh their experience of life. However, the yogic approaches that are utilized in the wellness retreats were found to be inadequate to facilitate this demand of the wellness seekers. The yogic interventions offered in the wellness retreats should be personalized for mind-body practice. Practice of *karma yoga* and sound-oriented practice for the empowerment of social and emotional well-being should be established. It is also essential to integrate the philosophical approaches with the yogic experience at the wellness retreats. Reshaping the yogic practice in wellness retreats through empowering all the approaches of yoga will promote holistic health of wellness travellers and the application of yoga for lifestyle.

Keywords: Holistic health, Health promotion, Wellbeing, Wellness tourism, Yoga

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Abstract ID - 114

The impact of yoga programs on mental wellbeing among Sri Lankan tour guides: Examining the mediating role of job engagement

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This study aimed to explore the association between yoga practice and mental health in Sri Lankan tour guides and whether job engagement mediate this relationship. Therefore, two questions were posed by researchers in this investigation. First one is, does yoga practice influence the mental health of the tour guides. The second question is, to what extent does job engagement mediate this potential association. To ensure generalizability of the findings, a quantitative research design was adopted. Data collection involved an online survey administered to a random sample of 384 Sri Lankan tour guides who engage in yoga practice. Moreover, to achieve a representative sample size, the Morgan table technique was utilized. The data was analyzed with IBM SPSS Statistics 25 and Smart PLS 4, which uses the PLS-SEM method. Furthermore, researchers measured three variables in their study with a five-point Likert scale: yoga practices, mental health, and job engagement. Results revealed a positive effect of yoga practice on both the independent and mediating variables. Furthermore, confirmatory factor analysis and mediation analysis, as well as descriptive statistics were used to validate the findings. Even though the study has many limitations, this study adds to the knowledge on yoga and mental health. The findings may also help the tour guides and the tourism industry. Since practicing yoga could greatly improve how the tour guides feel while they are working, it could also improve the quality of their work, job satisfaction and job retention. Furthermore, future studies should be done to find out what makes the practice of yoga helpful.

Keywords: Job engagement, Mental health, Sri Lankan tour guides, Yoga

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Abstract ID - 128

Positive psychology and tourists' well-being: A systematic literature review

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Tourism is a complicated network involving millions of people traveling throughout the world. The conventional tourism concept is based on increasing the number of visitors to secure economic returns, rather than concentrating on the mental health and wellbeing of the tourists. Conventional tourism models frequently overlook the true cost of the health of the travel industry and the expense per traveller. Covid-19 has demonstrated the extent to which the travel sector may be affected by global health concerns. The tourist and hospitality industries are the most severely affected worldwide, due to the virus outbreak. The ongoing virus outbreaks and the emergence of new strains drive governments to enforce brutal lockdowns. Based on these factors, this paper examines the current state of research on well-being in tourism from the lens of positive psychology and positive attitudes. A systematic review of 27 peer-reviewed articles published in English-language tourism journals indicates that tourist well-being is mainly linked to travel, rather than marketing and management of tourism. This systematic review was conducted following the PRISMA guidelines based on the keyword search on most frequently consulted freely accessible web search engines and online scientific electronic databases, MEDLINE/PubMed, and Google Scholar. This study presents a conceptual framework of the background, episodes of outbreaks of infections, and consequences on the well-being of the tourists. The results suggest strategies on how well-being can be used to generate better outcomes for tourism marketers and managers. By mapping what is known in the intersection between positive psychology and tourist well-being, this study identifies existing gaps and opportunities for future research in this area. Hence, this paper focuses on conceptual review using a systematic review based on published journals and theses from 2017 to 2024 on positive psychology and tourist well-being.

Keywords: Positive psychology, Tourist well-being, Tourism marketing and management

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Abstract ID - 140

Government intervention in Ayurveda tourism: A review

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In Sri Lanka, tourism is one of the largest foreign currency earners in the economy, after remittances, textiles, and garments. The objective of this study is to identify government interventions in Ayurveda tourism to provide congenial development framework for facilitating and accelerating investments and to improve livelihood opportunities at the local level and international level. This is a desk research, and the information was gathered and analyzed from the literature already available in print or published on the internet. Current Context of the institutional framework for Ayurveda tourism in Sri Lanka is fragmented under the existing tourism legislation. Mainly, indigenous medicine and foreign ministries work collaboratively for achieving goals. Although the distribution of important Ayurveda medical and wellness tourism related responsibilities among other ministries and agencies at the central level are covered under the constitution, the delegation of substantial but uncertain powers to the provincial and local levels further compound institutional fragmentation. There is little consultation, coordination, or cooperation, which makes it difficult to get things done. The national Ayurveda tourism institutions are subjected to public service regulations, which poses a challenge to recruiting and retaining the most-qualified, most-capable staff. This makes it difficult for the organizations to assume their core responsibilities effectively and efficiently. Although the private sector is well organized and entrepreneurial, a range of serious impediments to business and investment limit its effectiveness. That is the picture of government intervention in the tourism industry. The government can help in the overall promotion of the country as an Ayurveda medical tourism destination through formulation of new regulations for enhancing different sections in Ayurveda. The government can support the industry by introducing loan facilities and regulating government policies that can help Ayurveda tourism.

Keywords: Ayurveda, Government tourism policy, Medical tourism, Wellness tourism

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Abstract ID - 143

Identifying and evaluating the potential to develop eco-tourism in the Monaragala district, Sri Lanka

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Sri Lanka has great ecological diversity which is a draw for eco-tourism. The Monaragala district has a tremendous variety of topography, natural features, plant, and wildlife species. Identifying the ecotourism potential of the Monaragala district is the objective of this study. The objective was achieved by identification of the unique features of ecological and socio-cultural values of this area. Data was collected through 20 interviews with selected industry stakeholders, who were selected using purposive sampling. Data was analyzed using thematic analysis. A lot of natural and cultural attractions were observed in the places of Monaragala, Katharagama, Bibila, Wellawaya, Sevanagala, Gal oya, and Buttala. Lack of accommodation facilities with support services of traditional flavor such as infrastructure facilities, awareness programs for the community and other involved parties, renting bicycles, guide services, promotion of old modes of transport such as bullock carts, elephant and horse riding, seasonal markets and fairs were the prime challenges to the promotion of the eco-tourism. This study highlights the urgent need of a comprehensive strategy to address the notified challenges. Addressing these challenges is pivotal for the sustained growth of the Eco-tourism industry in Monaragala District. These research findings would provide insights to industry policymakers and strategy developers, and offer a foundation for informed decision-making, to promote eco-tourism in the Monaragala district in Sri Lanka.

Keywords: Attractions, Development, Eco-tourism, Potentials

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Abstract ID - 172

Promoting the Muthurajawela wetland as an eco-tourism destination: Challenges and opportunities

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The ecotourism industry is growing and increasing worldwide. It is a way of providing wealth to the country which creates important income and jobs for the country. According to the World Tourism Organization, ecotourism is the fastest growing sector in tourism. This research investigates the challenges and barriers associated with positioning Muthurajawela wetlands as an ecotourism destination. The unique biological and natural assets that make Muthurajawela wetlands an attractive destination pose both opportunities and challenges in the context of ecotourism. The three objectives of the study were to identify the existing eco infrastructure in Muthurajawela wetlands, to evaluate the perceptions and preferences of potential tourists regarding eco offerings in the region and to analyze the regulatory landscape and its implications on ecotourism development in Muthurajawela wetlands. The data was gathered through 20 semi-structured interviews with selected industry stakeholders by utilizing purposive sampling to select the samples. Data was analyzed using content analysis. The study reveals a notable gap between the potential of Muthurajawela wetlands and the current state of ecotourism readiness. Limited awareness among potential tourists, combined with limited engagement of the community was identified as a substantial barrier. Positive trends of ecotourism in Sri Lanka have negative environmental impact with consequences such as disturbance and loss of biodiversity, and air and water pollution. While preparing an integrated plan for ecotourism development, adoption of a proper planning process with interdepartmental collaboration is recommended. Collaboration with stakeholders to streamline regulations and create a conducive environment for ecotourism development is also recommended. The findings inform strategic initiatives aimed at fostering a symbiotic relationship between tourism and environment in the vibrant city of Muthurajawela wetlands.

Keywords: Ecotourism, Tourism development, Destinations development, Business opportunity

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Abstract ID - 279

The road less travelled: Exploring the barriers to enhance wellness tourism through Ayurveda in Sri Lanka

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Owing to its extensive Ayurvedic traditions and rich cultural legacy, Sri Lanka is well-positioned to benefit from the expanding market of wellness travel. An international wellness traveler typically spends 53% more than the average international tourist, while a domestic wellness traveler spends 178% more than the average domestic tourist. However, wellness tourism industry of Sri Lanka is yet to capture itsfull potential. Moreover, the Ayurveda industry in Sri Lanka is less examined in terms of wellness tourism. Therefore, this study aimed to identify potential barriers that the Sri Lankan Ayurveda industry encounters in its efforts to enhance participation in wellness tourism. The study employed a general qualitative method. Twenty semi-structured in-depth interviews were carried out with Ayurvedic doctors spanning a spectrum of experience levels, ranging from highly qualified and seasoned practitioners to new graduates, utilizing purposive sampling as the study focused on obtaining the views of these professionals with diverse expertise. The data was analyzed using thematic analysis. Pessimistic traditional views of the Ayurvedic doctors emerged as one of the main hindrances for Ayurveda to integrate its offerings with wellness tourism. Further, the study identified other barriers, such as the difficulties associated with compliance with Ayurvedic medicine regulations in Sri Lanka, inconsistent policies which make consumers doubt the products or services, inadequate coordination between the stakeholders in the Ayurveda and wellness tourism industries, inconsistent infrastructure and standards that allow foreign consumers to doubt the quality of services and products and, the state of current marketing and promotionstrategies that impede market expansion. The study contributes insightful information to policymakers, tourism authorities, and industry stakeholders to understand the barriers hindering the integration of Ayurveda with wellness tourism.

Keywords: Ayurveda, Barriers in ayurveda, Integration, Wellness tourism

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Abstract ID - 287

Exploring the therapeutic potential of Yoga for Women's Health: A review

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This review is based on research articles published between 2020 and 2023 that explore the therapeutic effects of yoga that are especially designed to address different elements of women's health. By using a systematic method, applicable research articles were identified by utilizing comprehensive searches conducted through several electronic databases, such as PubMed, Google Scholar, and ResearchGate. The search strategy combined keywords related to yoga, women's health, and specific health conditions. Inclusion criteria were established for study design (randomized controlled trials, cohort studies conducted previously), participant population (females), and intervention type (past yoga programs). Ten research articles were selected according to the inclusion criteria. The findings demonstrate the various ways that yoga can support women's health at various phases of life. In particular, the research looks at how Yoga affects physical, mental, and emotional health as well as how it might help with several common medical problems that affect women. The effectiveness of Yoga in enhancing reproductive health outcomes, such as menstrual health, fertility, and menopausal symptoms, is one of the major themes that emerge from the analyzed studies. The review also looks at how Yoga can improve mental health outcomes like mood regulation, anxiety management, and stress reduction. This review offers insights into the therapeutic potential of Yoga as an affordable and comprehensive way to promote women's health and well-being through a synthesis of recent research findings. The significance of incorporating Yoga into women's healthcare plans to support optimal health outcomes across the lifespan is highlighted. The implications of these findings for clinical practice, public health initiatives, and future research avenues are addressed.

Keywords: Menopause**,** Menstrual disorders, Women’s health, Yoga

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High-tech innovations in traditional healthcare systems

Abstract ID - 02

A review on introduction to the evolution of Sanskrit-Chinese bilingual dictionaries

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With the influence of Buddhism, Sanskrit language was introduced to China before 6th century AD. Sanskrit language greatly helps understanding Buddhism and Ayurveda medicine in China. Until the application of modern translation methodologies with dictionaries, the process of translation from Sanskrit to Chinese was very primitive. However, there were some phonological and semantic (义音译) glossaries of Chinese-Buddhist terms such as "Translation of Sanskrit" （翻梵语-Fan Fanyu） by monk Bao Chang in the 6th century AD and "Collection of Translated Buddhist Terms" (翻译名义集-Fanyi mingyi Ji) by monk Fa yun（1088-1158). Monk Yi jing (635-713 AD) was the first author who prepared a Chinese-Sanskrit glossary with Sanskrit words and Chinese characters, which was called "One thousand Sanskrit words" （梵语千字文-Fanyu qianzi wen. Those works were the only glossaries helped the scholars to translate and read the Sanskrit texts. With the influence of the Industrial Revolution, there were significant developments in East Asian Sanskrit studies. One of the greatest developments was the preparation of Sanskrit-Chinese bilingual dictionaries such as "Handbook of Chinese Buddhism, being A Sanskrit-Chinese Dictionary" by Ernest J. Eitel, published in 1888. In the beginning of the 20th century, Ogiwara Unrai edited "Kan'yaku taishō bonwa daijiten "(漢訳対照梵和大辞典), a Sanskrit and Japanese dictionary with Chinese words. This dictionary is widely used up to now by both Chinese and Japanese scholars for intercultural Studies. The Buddhist Chinese-Sanskrit Dictionary authored by Akira Hirakawa in 1997 is now widely used for academic purposes in Japan and China as well.

Keywords: Bilingual Dictionaries, Chinese, Sanskrit

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Abstract ID - 08

Preserving Antifungal Effectiveness of Garlic through Microencapsulation

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This study explores the antifungal capabilities of ethanol extracts derived from *Allium sativum* (EEAS), focusing primarily on the preservation of stability via encapsulation. A thorough examination of three extraction techniques, including column extraction, Soxhlet extraction, and maceration for a 24-hour period, was undertaken. Qualitative assessments, such as sodium nitroprusside and lead sulfide examinations, were utilized to pinpoint sulfur compounds linked to antifungal properties. Quantitative analyses comprised determining total polyphenolic content and employing X-ray photoelectron spectroscopy (XPS). The antifungal effectiveness was assessed against *Aspergillus niger*. Subsequently, the characterization of encapsulated particles encompassed evaluating size, zeta potential, and encapsulation efficiency. The selection of extraction methods was guided by their efficacy, with column extraction being preferred for EEAS (4%) due to its ability to safeguard heat-sensitive compounds. Sulfur detection techniques, such as the lead sulfide test and XPS analysis, unveiled distinct sulfur compounds within EEAS. The phenolic content of EEAS was 59.0 ± 0.3 mg GAE/g. Remarkably, EEAS (500 mg/mL) demonstrated substantial antifungal activity against *Aspergillus niger*, yielding a mean inhibition zone of 23.7 ± 7.3 mm following 48 hours of incubation at 35 °C. To amplify the antifungal potency of EEAS, microencapsulation was employed, yielding encapsulated EEAS particles with dimensions of 2.376 ± 1.969 µm, a zeta potential of 2.09 ± 0.81 mV, and an encapsulation efficiency of 23%. The presence of phenolics and sulfur compounds in EEAS indicated the promising properties for pharmaceutical and nutraceutical antifungal products.

Keywords: *Allium sativum*, microencapsulation, XPS

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Abstract ID - 46

Centella asiatica Silver Nanoparticles: A Revitalized Form of a Traditional Medicinal Herb

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Centella asiatica, also known as gotukola or Indian pennywort, is a traditional medicinal herb in the family Apiaceae that has been used for centuries in tropical Asian countries. It is considered one of the chief herbs with diverse pharmacological activities in traditional Chinese, *Unani*, and *Ayurveda* medicine for treating skin problems, healing wounds, revitalizing neurons, and as an antipyretic agent. In *Ayurveda*, *C. asiatica* is also referred to as *Mandookaparni* and is highly regarded as a rejuvenating herb that increases memory and intelligence. Thus, revitalizing traditional plant usage, integrating modern techniques such as nanotechnology makes them more accessible, effective, and sustainable in contemporary contexts. This paper investigates the antioxidant, antimicrobial, cytotoxic, and melamine detection properties of green synthesized silver nanoparticles (AgNPs) using shade-dried leaf extracts of five morphologically different varieties of *C. asiatica* available in Sri Lanka, where the AgNP synthesis was confirmed by the color change and scanning electron microscopy (SEM). The SEM analysis showed the synthesized AgNPs were spherical and about 40-60 nm in size. The qualitative phytochemical analysis revealed the presence of saponins, tannins, carbohydrates, steroids, terpenoids, and alkaloids in *C. asiatica* water extracts (WEs). Total Phenolic Content, Total Flavonoid Content, Total Antioxidant Capacity, and 2,2-diphenyl-1-picrylhydrazyl assays indicated that the synthesized AgNPs have higher antioxidant activity compared to the respective WEs. Moreover, *C. asiatica* AgNPs showed higher antimicrobial activity against Gram-negative *Escherichia coli* and Gram-positive *Staphylococcus aureus* than WEs. The cytotoxicity analysis performed on *Artemia salina* verified the safety of 10 ppm *C. asiatica* AgNP, where the percentage viability was calculated as 95%. Further, AgNPs were proven sensitive to a range of melamine concentrations from 0.1 ppm to 1000 ppm and melamine adulteration in milk. Accordingly, the above study indicates the revitalized form of *C. asiatica* is more efficient and aligns with sustainable practices of traditional medicine.

Keywords: *Centella asiatica*, Nanotechnology, Silver nanoparticles, Traditional medicinal plant, AgNP.

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Abstract ID - 68

A Comparative Study of the Golden Ratio and the Microcosmic Blessing Theatre in Sri Lanka

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Few studies have been done in concepts of Sri Lankan Buddhist rituals and architectural proportions in the Buddhist ritual space. None of them performed in mental and Physical balance of human using six senses, structural balance, and representation of cosmos in the Buddhist rituals (concept of the microcosmic blessings theatre). Objective of this study was consisted of the process (the microcosmic blessings) that follow to obtain mental and physical balance of all parties that participate in the Buddhist ritual. Comparative research methodology was used for the study. Quantitative comparisons were based on archaeological evidence in Egyptian, Asian and Sri Lankan traditions. Qualitative comparisons were done using concepts of the Buddhist ritual process, ritual space (the microcosmic blessings theatre) and Golden ratio. The Golden ratio that is commonly found in nature has been used in designing Egyptian ancient architecture. Divine proportion has been introduced by Fibonacci who was an Italian mathematician, after studying Indian culture in 11th century. Use of space for microcosmic blessings procedure that follow to turn it into architectural proportions in *Uposathagara*, Relic of Tooth, *Vatadage*, Image house and ancient hospitals to achieve healthy living of human and ecosystems. These were highly formal and symmetric Architectural layout arrangements. Major results are that nearly similar ratios can be seen in the Buddhist architectures in Sri Lanka as well as Egyptian architectures. Alignments can be seen in between the Eye of God in Golden spiral and *Deva pada* in the microcosmic blessing theatre. Conclusion of this study is the microcosmic blessing theatre processes (*Pirith* chanting and other Buddhist rituals) are restored for mental and physical balance of human and well-being of society.

Keywords: Architectural proportions, Golden ratio, Mental and physical balance, Ritual space, Sri Lankan Buddhist ritual performance,

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Abstract ID - 79

Development of an Instant Paspanguwa Candy

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The Ayurveda paspanguwa formulation, recognized for its natural healing potential, faces limited adoption due to Western medicine's influence and the bitterness of its traditional formulations. To endorse the paspanguwa formulation, this study explored the potential of development of paspanguwa candy by blending six medicinal herbs using traditional and modern extraction techniques. The decoction extract is boiled with water and then freeze-dried, converting the herbal extract from a liquid to a powdered form. Different ration (20; 40: 1) of water: sugar: herbal extract were mixed with sugar to create candies, and a taste test was conducted by using 25 untrained panelists according to the 9-point hedonic scale for selecting the best candy for future analysis Sugar (4 g) and 0.1 g herbal powder of the candy sample was selected as the dependent on sweetness ($P<0.05$). Modern analysis techniques FTIR confirmed that the candy-making process preserved the herbal properties. When considering 1 g of herbal extract and 1 g of the Candy sample, no changes in phytochemical properties were detected. The final candy (5 g) met pharmaceutical specifications with a and mean pH 6.3± 1.9. Paspanguwa candy products provide a convenient way to preserve the herbal liquid and reach out especially to children, teenagers, and consumers with busy lifestyles. The FTIR analysis also revealed the presence of carbohydrates, alkaloids, flavonoids, terpenoids, and polyphenol as natural metabolites. The product aimed to bridge the gap between popularity of Ayurvedic medicines among younger generations and consumers with busy lifestyles.

Keywords: Ayurveda, Herbal treatments, Modern technology, Paspanguwa candy Traditional methods.

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Abstract ID - 95

Determination of drug safety of Ramabana Rasaya in the Sri Lankan herbal industry

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Herbo mineral drugs (Rasaushadhi) play a significant role in traditional Ayurveda medicine. Instant effectiveness due to its particle size, prolonged shelf life, small doses, and extensive therapeutic utility are considered inherent properties of Herbo mineral drugs. Stringent quality control of Rasaushadha is essential to ensure the safety and efficacy of the drugs. Due to the inclusion of heavy metals and metallic compounds in the raw materials, its manufacturing process is extremely complex. There is a clearly defined purification process in Ayurveda for metals and minerals to eliminate the toxic substances and to enhance the desired properties of the drugs. Therefore, it is necessary to follow intensive and carefully arranged processing steps to ensure the safety and efficacy of the metallic and mineral raw materials. Ramabana Rasaya is one of the beneficial drug formulas for gastrointestinal problems in Ayurveda. The raw materials are purified Aconitum ferox, Syzygium aromaticum flower buds, Piper nigrum L, Myristica fragrance kernel, and a mixture of purified Mercury and purified Sulphur. This study aimed to carry out a comparative analysis of three different market samples of Ramabana against an inhouse prepared sample by using physicochemical analysis, chromatogram analysis by High-Performance Liquid Chromatography (HPLC) and Thin Layer Chromatography (TLC) and finally XRD analysis for each drug, to ensure the safety and efficacy of the market samples. According to the outcome of the chromatography analysis, physio chemical properties, and XRD analysis, there were deviations shown in market samples compared to the inhouse samples. Reasons might be due to the usage of different formulas and processing methods. However, to ensure the safety and efficacy of Herbo mineral drugs it is imperative to standardize the Herbo mineral drugs by adopting standard operating procedures (SOPs).

Keywords: HPLC analysis, physicochemical analysis, Ramabana Rasaya, TLC analysis, XRD analysis

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Abstract ID - 101

A Comparative Study of the Lucus Ratio and Human Proportions of the Medicinal Troughs in Sri Lankan Buddhist Ritual Space

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Despite the significance of Sri Lankan Buddhist rituals on human health, academic research on these aspects remain scarce. The concept of space, process, technique, and purpose within these rituals have been explored in both Sri Lankan and foreign studies. This investigation sought to discern the mental and physical equilibrium of individuals engaging in Buddhist rituals through the utilization of their six senses. Utilizing qualitative and quantitative methods, a comparative analysis was conducted incorporating archaeological evidence from Egyptian and Sri Lankan traditions. The investigation delved into the architectural proportions of medicinal troughs, microcosmic ritual spaces, and the application of the Lucus ratio. It was observed that the shape of the Pyramid, rooted in mathematical ratios, embodies religiously significant ideals of human proportions (the Lucus ratio), as depicted in the paintings and sculptures of ancient Egyptian civilizations. Major findings were that nearly similar ratios of human proportions in the Mahavihara and Mihinthale medicinal troughs were designed out of three in Anuradhapura era in Sri Lankan Buddhist context. The layout of the medicinal trough in the ancient Buddhist hospital at Mihinthale featured a consistent arrangement, with larger rectangular room positioned in the North-Eastern corner. Each room was facing towards the opened central square shrine with stepped Pyramid (Prasada) roof in the rectangular inner court of the hospital. Present study revealed striking similarities between the Buddhist architectural proportions in Sri Lanka and the sacred ratios in Egypt. The study concluded that these proportions play a crucial role in fostering one's health, supporting sustainable and healthy living practices based on the concept of mental and physical balance facilitated through engagement with the six senses.

Keywords: Architectural proportions, Lucus ratio, medicinal trough, Mental and physical balance, Sri Lankan Buddhist ritual performance,

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Abstract ID - 141

Innovation in Graduate Ayurveda Doctors

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Conceive innovation and innovation opportunities during a lore sector, like Ayurveda has a different perspective from that of the traditional science/technology sector. In the lore sector, there are richer possibilities of success through retrospective and inward exploration than during a normal prospective/outward innovation exercise. The Ayurveda sector could deliberate on the relevant issues related to "New Innovation" versus "New Exploration" in the untapped classical traditional knowledge base. The study focused on understanding the behavioral phenomenon, which is termed innovation between Entrepreneurial and nonentrepreneurial graduate Ayurveda doctors in Sri Lankan context. The quantitative research was done via e-mail-distributed questionnaires. An existing pre-structured Entrepreneurial orientation scale was used to measure the innovativeness of graduate Ayurveda doctors. The reliability of the size of this dimension was decided by calculating Cronbach's Alpha values above 0.6 indicating the reliability of the size. The descriptive statistics presented within the results section indicated that the entrepreneurial Ayurveda doctors had a better mean innovativeness score of 3.99 compared to the 3.51 score achieved by the non-entrepreneurial counterparts. The t-tests confirmed that the two groups of Ayurveda doctors there were significantly different at a 5% confidence level In line with the literature. It is found that entrepreneurial graduate Ayurveda doctors will measure a significantly higher innovativeness orientation score than non-entrepreneurial graduate Ayurveda doctors

Keywords: Ayurveda doctors, Entrepreneurial Orientation, Innovation

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Abstract ID - 255

Digitizing Patient Records in Ayurveda Hospitals: Introducing Barcode Technology for Enhanced Healthcare Delivery

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The integration of technology into traditional medical systems is critical for enhancing healthcare delivery. This study examined the implementation of patient-specific barcodes linked to electronic health records (EHRs) to digitize patient records within the outpatient and inpatient departments of the Ayurveda Hospital for Kidney Disease, Bathalayaya. The primary objective was to assess the effectiveness of this technology in streamlining data management and improving patient care in an Ayurveda healthcare setting. We introduced patient-specific barcodes in February, initially testing in the kidney disease clinic with subsequent hospital-wide expansion planned. These barcodes were integrated with existing EHRs, allowing for real-time updates and immediate access to patient information. Key data sections included patient demographics, treatment history, and diagnostic results. While currently receiving treatments were used as inclusion criteria, patients with incomplete records were used as exclusion criteria. The feasibility of this system was evaluated through its ability to update and retrieve patient information accurately. The pilot study in the kidney disease clinic demonstrated significant improvements in record accessibility and data accuracy. However, challenges such as initial data entry errors and delays in record updates were identified. Statistical analysis comparing pre- and post-implementation data highlighted a notable reduction in the time required for data retrieval and an increase in data entry accuracy. Hence the introduction of barcode technology in the Ayurveda hospital setting has proven to be a valuable tool for modernizing healthcare delivery. While the technology facilitated enhanced data management and improved operational efficiency, the transition also presented manageable challenges. Future research should focus on optimizing barcode integration and expanding its application across different departments to maximize its benefits in patient care management. The findings underscore the potential of technological advancements in complementing traditional medical practices.

Key words: Digitalization, Barcode Technology, Ayurveda Hospitals

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Abstract ID - 282

Analysis of Different Cinnamon Varieties Present in Local Ayurvedic Medicinal Product, Khadirarishta

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Cinnamon is one of the most important spices used worldwide. Eight species of cinnamon are grown in Sri Lanka. *Cinnamomum verum* (Sri Gemunu and Sri Wijaya), *Cinnamomum dubium, Cinnamomum citriodorum, Cinnamomum rivulorum, Cinnamomum sinharajense, Cinnamomum capparu-corende, Cinnamomum ovalifolium, Cinnamomum litseaefolium.* The Khadirarishta, an ayurvedic medicinal concoction, is used to treat skin issues, swollen lymph nodes, intestinal worm infestations, leprosy, jaundice, and heart ailments. Khadirarishta is formulated with a variety of herbal ingredients khadir, water, jaggery, dhataki flowers, honey, triphala, cinnamon, clove, and cardamom. However, the absence of a specified cinnamon variety poses a notable concern. This study aims to address this ambiguity by employing GCMS analysis to determine the specific cinnamon varieties in Khadirarishta. Cinnamon bark oil and leaf oil were extracted from each of the cinnamon varieties listed above. Khadirarishta was extracted using both water and a range of solvent systems, including methanol, ethanol, ethyl acetate, toluene, petroleum-ether, and chloroform. GC-MS fingerprinting analysis was carried out to investigate the presence of chemical compounds according to the National Institute of Standards and Technology (NIST 3.0) libraries. At least 60% similarity index was considered significant. Each sample was replicated three times for consistency and reliability. Sri Gemunu bark oil and Sri Wijaya bark oil contained cinnamaldehyde and Sri Gemunu leaf oil and Sri Wijaya leaf oil contained Eugenol. *C. dubium* leaf oil contained both cinnamaldehyde and eugenol. *C. sinharajaense* leaf oil contained eugenol. The chromatogram of Khadirarishta toluene extract and the chromatograms of Sri Gemunu and *C. dubium* leaf oils exhibited the presence of Eugenol, Dodecanoic acid, Methyl tetra decanoate, Hexadecenoic acid, Octadecenoic acid, Methyl stearate with six common peaks. This observation strongly implies that Khadirarishta likely contains the same species of cinnamon found in the leaf oils of Sri Gemunu and *Cinnamomum dubium*.

Keywords: Cinnamon, GCMS, Khadirarishta

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Toxic effects on humans, animals, and ecosystems

Abstract ID - 05

Combating Toxic Waste Crimes Through Environmental Criminology: A Multifaceted Approach to Safeguard Health and the Environment

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The escalation of toxic waste poses a severe threat to human health, animal welfare, and ecosystem integrity worldwide. The imperatives of environmental criminology offer a unique lens through which to understand and address these challenges, promoting sustainability and public safety. This study focused on the application of environmental criminology principles to mitigate the impacts of toxic waste crimes, aiming to safeguard human and environment health. The primary objective of this research was to explore the effectiveness of environmental criminology strategies in combating toxic waste crimes and to propose sustainable solutions. The specific objective was to identify the criminogenic conditions that facilitate toxic waste crimes and to evaluate the role of policy and enforcement in preventing such offenses. Toxic waste crimes have increased in complexity and scale, driven by illegal dumping, inadequate waste management practices, and insufficient regulatory oversight. This study addresses the problem of identifying and implementing effective strategies within the framework of environmental criminology to prevent toxic waste crimes and their adverse effects. The research employs a mixed-methods approach, combining a comprehensive literature review, case study analyses, and five expert interviews. This methodology enables a deep understanding of the current state of toxic waste crimes, the application of environmental criminology, and the development of sustainable waste management practices. Findings revealed that toxic waste crimes were significantly influenced by economic incentives, regulatory loopholes, and inadequate waste management infrastructure. Environmental criminology offers valuable insights into preventing these crimes through environmental design, community engagement, and enhanced surveillance. Sustainable solutions, including waste reduction, recycling initiatives, and green technology adoption, emerged as critical to mitigating the impact of toxic waste crimes. The study confirms the critical role of environmental criminology in addressing toxic waste crimes. Integrating criminological principles with sustainability practices presents a promising path toward reducing the incidence of these crimes and protecting public health and the environment. Recommendations include strengthening legislation and enforcement mechanisms, promoting public awareness and participation, and fostering collaboration among stakeholders. Investing in sustainable waste management technologies and practices is essential for long-term crime prevention and environmental protection.

Keywords: Environmental criminology, Environmental design, Sustainability, Toxic waste management

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Abstract ID - 30

Buddhist Human Training for Mitigating Toxic Effects

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The Buddha's teachings, encapsulated in the disciplinary codes for monks, Jataka tales, and sutras, provide a comprehensive understanding of the origins, progression, and detrimental effects of addiction. The main objective of this study was to explore Buddhist training methodology for cessation of Alcohol and Intoxicants effects. Primary Buddhist sources, relevant scholarly articles and publications were analyzed. In the minor rules of the disciplinary code prescribed for monks, alcohol is prohibited for Buddhist monks. In *Hesajjjakanda in Vinaya pitaka*, Buddha allowed proper dosage of smoking or mixing alcohol with foods only as a medical treatment. Since toxicants directly change our behavior and thought processes, Buddha taught toxicants as a barrier to attain enlightenment. *Pilthasura,* a wine prepared from rice; *Puvasurli,* prepared from sweet cakes, *Odanasura*, prepared from boiled rice and also with ferment and spice. *Meraya* was prepared with extracts of flowers (*phalasavo*), madhu or honey, and 'guda'. In *Sigala, sutta* and *parabawa sutta wiyaggapajja sutta,* Buddha mention 6 drawbacks of alcholol as, immediate loss of wealth, anger, susceptibility to illness, disrepute, indecent exposure and weakened wisdom and as a path to the hell. In *Apayasanwaththanika sutta* and *duchcharithawipaka sutta* Buddha teaches that alcoholic person`s next life will be in hell, be an animal, evil or eventually if born as a human he will be a mentally ill. *Dhammika sutra* explained that lay people should refrain from promoting alcohol to Buddhist monks. Buddha advised to control the thought process by engaging in *cuttanupassana*, to mitigate the desire to taste consume alcohol. *Vitakksanta sutra* explains 5 ways to control the thoughts gradually. Buddha's teachings offer practical strategies to control alcohol cravings and could be instrumental in addressing alcohol addiction, given individual commitment and societal support. The effectiveness depends on the individual's commitment to practice them, and the support provided by the community and the state in promoting a healthier lifestyle.

Keywords: Alcohol, Buddhism, Intoxicants, Training

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Abstract ID - 31

Mindfulness-Based Training for Developing Emotional Intelligence and Mitigating Intoxicated States of Mind

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This research delves into various Buddhist scriptures and teachings to explore the profound impact of attachment on the human mind and its connection to toxic behaviours and mental states. The main objective of this study was to investigate the ways to mitigate the mental toxic impact with the help of Buddhist teachings. A qualitative methodology was employed, with a literature review using primary Buddhist literature. Attachment or clinging is considered as the main roots greed hatred delusion toxic thing for a human. *Madupindika sutta* explains how eye and, eye consciousness arises with contact as condition, followed by the feeling, that one perceives, thinks about, and mentally proliferates. *Dhammachakka* and *sacchawibhanga sutra* explains attachment or clinging as a primary cause of toxic effects for the mind. the Second Noble Truth states that the origin of suffering is attachment or desire. The Third Noble Truth states that cessation of being toxicant and the forth truth explains the path to purify. DhP 38 verse explains toxic mind is the greatest enemy for oneself. DhP 204 explains the pure mind is the greatest health. commentary of MN says mind is pure at birth, but external intoxicants make the mind dirty. In mahavagaga, buddha advised for the first 60 arhat monks to preach dhamma for the purification of the mind. *Rohitass sutra* explains fathom-long Body with perception and mind that describes the world. In *alagaddupama Sutta*, Buddha emphasized the harmful consequences of sense desires not only for the individual but also for the broader interconnected web of existence. In *mettaninsansa* and *metta sutta* Buddha's discourse on loving-kindness (metta) extends compassion to all beings. Toxicity, such as hatred or ill-will, disrupts this interconnected web of goodwill and harms both the giver and receiver. Dhp first verse stats that mind is the foremost and affect thoughts actions and speech. In conclusion, this study unveils the profound wisdom of Buddhist teachings in addressing the toxic effects of attachment on the human mind. This study serves as a poignant reminder of the timeless relevance of Buddhist wisdom in our modern world, offering a pathway towards inner peace and genuine well-being.

Keywords: Buddhist Training, Compassion, Environmental Toxins, Holistic Solutions, Interconnectedness

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Abstract ID - 86

Acute and Chronic Toxicity of Chitosan Mediated Silver Nanoparticles on *Daphnia* sp.

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Silver, including nanoparticles is generally less toxic to humans. However, with the increasing human, animal, and ecological exposure to nanoparticles, there is a potential risk associated with their short-term and long-term toxicity. This research mainly focused on assessing the toxicity of chitosan-silver nanoparticles (Cs-AgNPs) on aquatic systems, using the aquatic organism, *Daphnia* sp. Chitosan (0.5 g) was mixed with $AgNO_3$ (2 mM, 0.5 L) at 90 ˚C followed by the addition of NaOH (1%, 1.0 and 1.5 mL) at 5 and 10 minutes. Colour change of the solution mixture from light to dark brown and the presence of the SPR band at 430 nm in the UV-Visible spectrum, confirmed the formation of Cs-AgNPs. Scanning Electron Microscopy image showed spherical NPs with a size range of 5-20 nm. FTIR spectrum confirmed the presence of chitosan as capping agents on Cs-AgNPs. Acute toxicity of Cs-AgNPs was determined by exposing ≤24 h old neonates (10 individuals per replicate, n=30) of *Daphnia* sp. to Cs-AgNPs (0.0-2.5 mgL^{-1}). LC_{50} values determined after 24 and 48 h exposure periods were 0.148 mgL-1 and 0.085 mg L^{-1}, respectively. Chronic toxicity of Cs-AgNPs (0.00-0.10 mgL^{-1}) was tested for a period of 21 days, using one neonate per replicate (n=3) using different reproductive toxicity endpoints. Total reproduction, number of offspring in the first brood, and the time taken to produce the first brood were affected in a dosage dependent manner. Increasing concentrations significantly reduced the total population and the number of offspring in the first brood while the time taken to receive the first brood significantly increased ($p<0.05$). Additionally, the neonates exposed to elevated Cs-AgNPs (0.02–0.10 mg L^{-1}) displayed significantly smaller bodies compared to the control organisms after three days of exposure. The results confirmed that regardless of the concentration, AgNPs have negative effects on the existence of aquatic organisms and may pose a threat on biodiversity.

Keywords: Chitosan, *Daphnia* sp., Reproduction, Silver nanoparticles, Toxicity

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Abstract ID - 99

The Presence of Bisphenol A in Some Food Containers Used in Sri Lanka

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Bisphenol A (BPA) is an industrial organic synthetic chemical compound, which is a key component of polycarbonate and epoxy resin manufacturing. It is a multiple health-hazardous chemical because of its potential endocrine-disrupting effects and adverse health implications. It can bioaccumulate, posing threats to aquatic ecosystems and organisms. This research aimed to assess BPA presence in common plastic food containers in Sri Lanka. Samples were randomly collected from popular branded PET drinking bottles and yogurt cups while some other various food containers (teacups, plastic food plates) used in public canteens were obtained from street markets. Samples were immersed in HPLC-grade Acetonitrile for 72 hours (at 25 ^{o}C) for the extraction of BPA. Then the solvent was removed using the rotary evaporator (220 rpm, 32 ^{o}C). Filtered extracts were analysed using Gas Chromatography/Mass Spectrometry (GC/MS). BPA standards and the triplicated samples were analysed with the GBI_06. L and W9N11.L libraries. The limit of detection (LOD) was 0.004 mgKg^{-1} and the results of randomly collected PET bottles and yogurt cup samples were below the limit of detection. All selected teacups and one sample of food plate collected from the street market were positive for BPA and the BPA contents were 0.35±0.01 mgKg^{-1}, 0.37±0.07 mgKg^{-1}and 0.32±0.07 mgKg^{-1}, respectively. Recently published Tolerable Daily Intake (TDI) value for BPA is 0.2 ngKg^{-1} according to the European Food Safety Authority (EFSA). The detected BPA levels of teacups and food plates exceeded significantly this limit. Hence it is difficult to recommend the consumption of plastic food containers such as teacups and food plates available in the street markets. Especially for the storage of hot food for longer periods. Utilization of PET bottles and yogurt cups may also pose a risk, as the LOD exceeds the TDI published by EFSA.

Keywords: Bisphenol A, EFSA, Plastic food containers, TDI

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Abstract ID - 105

Intoxicant Effects on Human, Animals and Eco-Systems: Insights from *Kumbha Jataka* for Human Health

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Misuse of intoxicants causes severe health problems in Sri Lanka. Antibiotic overuse in animals leads to rising resistance. Invasive species threaten Sri Lanka's biodiversity. The story revolves around the discovery of alcohol and its adverse effects in Kumbha Jataka. The objective of the study was to analyse the *kumbha jataka* with reference to intoxicant effects on human, animals and eco systems. The study was conducted by using qualitative methodology, analysing primary Buddhist sources, relevant scholarly articles and publications. The story illustrates the destructive effects of alcohol on human society. The forester and the ascetic introduced wine to the city, which led to widespread intoxication. The men became idle, leading to the city's downfall. This highlights the potential for alcohol to lead to societal decay, emphasizing the dangers of addiction and the importance of moderation. Animals in the story were the first to discover and consume the fermented mixture, which led to them becoming unconscious. This highlights the potential dangers of intoxicants to animals, who may not be aware of the harmful effects. The story doesn't directly address the impact of intoxicants on ecosystems. However, it does show how human actions, such as the creation and distribution of alcohol, can lead to significant changes in the environment, such as the decline of a city including animals and deities. This can be extrapolated to a broader ecological context, where the misuse or overdose of substances can disrupt ecosystems and biodiversity. In conclusion, the *Kumbha Jataka* provides a cautionary tale about the potential dangers of intoxicants to individuals, societies, to the nature. The literature documents the disturbance the of equilibrium affects the one health approach and leads to the destruction. Its lessons can be applied to contemporary Sri Lankan society to promote responsible behaviour, protect animal welfare, and preserve the environment.

Keywords: Animal Welfare, Ecosystem Impact, Human Health, Intoxicant Effects, *Kumbha Jataka*

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Abstract ID - 110

The Impact of Food Colouring and Processed Meat on Cancer Aggravation: A Narrative Review

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The relationship between dietary factors and cancer incidence has been a subject of significant scientific inquiry, with particular attention given to the influence of food colouring and processed meats. This abstract delves into the extensive body of research investigating the exacerbating effects of these dietary components on cancer development and progression worldwide. Scientific evidence was obtained by referring to recently published articles that are included in Google Scholar, PubMed, and ELSEVIER databases. Food colouring that are widely used in processed and packaged foods to enhance their visual appeal, contains synthetic compounds that have raised concerns regarding their potential carcinogenicity. Studies revealed a correlation between certain food dyes and increased cancer risk, particularly in animal models. Furthermore, the ubiquitous presence of these additives in the global food supply chain underscores the urgency of understanding their impact on human health. Processed meat, including bacon, sausages, and deli meats, undergo various preservation and flavour-enhancing techniques that often involve the addition of nitrates/nitrites and other chemical additives. Consumption of these products has been associated with elevated risks of several cancers, including colorectal cancer, due to the formation of carcinogenic compounds such as nitrosamines during processing and cooking. The global prevalence of cancer continues to rise, with dietary factors playing a significant role in its etiology. Epidemiological studies have demonstrated a consistent association between the consumption of food colouring and processed meats and an increased incidence of various cancers, presenting a formidable public health challenge. In conclusion, the majority of toxicology-related research studies evoke that prolonged usage of artificial food dyes like Red 40, Yellow 5, and Yellow 6 has higher carcinogenic tendencies. Additionally, processed meat items such as sausages and bacon also statistically show a higher risk of cancer. These findings underscore the need for informed consumer choices, regulatory actions, and collaborative efforts to minimize the potential exacerbation of cancer through dietary factors.

Keywords: Food colouring, Processed meats, Cancer, toxicology

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Abstract ID - 137

Toxicity Studies of *Ficus benghalensis* Aerial Root Decoction on Two *In vivo* Models

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Ficus benghalensis (Banyan tree) is an important medicinal plant traditionally used to treat diseases due to its high antioxidant content. Aerial roots of the plant have been reported to be used in ayurvedic treatments. However, there is a lack of solid scientific data on its potential acute toxicity effects. Therefore, the present study aimed to evaluate the potential toxicity effects of *F. benghalensis* aerial root decoction on two *in vivo* models, brine shrimps (*Artemia salina*) and the zebrafish (*Danio rerio*) embryos. These models have been increasingly used as alternative screening platforms to evaluate the toxicity of herbal medicines. The decoction was prepared as stipulated by traditional Ayurveda medicine to prepare '*Kasaya*'. Six concentrations of aqueous extract (50-1000 μg mL^{-1}) were utilized in the Brine shrimp lethality assay (BSLA). The zebrafish embryo toxicity (zFET) assay was conducted, a concentration gradient (50-1500 μg mL^{-1}) of the tested aqueous extraction for 24, 48, 72 and 96 hrs at room temperature (26 °C) according to the OECD guideline no. 236. The percentage mortality and LC_{50} were determined using the probit analysis of the SPSS package. The LC_{50} of BSLA is 362.71 μg mL^{-1}, whereas the toxicity of the aqueous extract in zFET was found to be concentration and time-dependent. LC_{50} values at 24 hrs (530.62 μg mL^{-1}) were notably reduced in 48 hrs (466.20 μg mL^{-1}), 72 hrs (368.71 μg mL^{-1}) and 96 hrs (296.03 μg mL^{-1}). Embryo coagulation was the most common lethal effect, along with lack of somite formation and heartbeat. This is the first study to test the toxicity of an aqueous extract of the aerial roots of *F. benghalensis* using BSLA and zFET assays. The present study revealed that the tested extract is less toxic to *A. salina* and zebrafish embryos, implying that the extract could be a useful treatment option, given the genetic similarity between zebrafish and humans. However, further research is required to determine the extract's cellular effects and mechanism of action.

Keywords: Acute toxicity, Brine shrimp lethality assay, *Ficus benghalnesis,* Herbal Medicine, Zebrafish embryo toxicity assay

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Abstract ID - 178

A Review on Alasa: A Kshudra-roga

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Ayurveda authentic texts classify diseases under two major categories based on their severity: *Maharoga* and *Kshudra-roga. Kshudra-roga*, is a class of minor diseases, but with the right circumstances that might even become severe or fatal. Many *Kshudra-roga* affect the skin and its appendages. Similarly, *Alasaroga* is also characterised by ulceration of toe webs following exposure to contaminated mud resulting sodden in interdigital clefts associated with pruritus, burning sensation, and pain. Objectives of this study included reviewing *Alasaroga* according to the Ayurveda concepts and modern pathophysiology and comparing of *Alasaroga* with some modern disease entities. To compile the literary data Ayurveda authentic classics with their commentaries, modern medical literature, online resources and medical databases have been incorporated. The collected data were analysed, tabulated and conclusively interpreted. In *Alasaroga* toe web ulceration after prolonged exposure to contaminated mud may either be mild or very severe leading to amputation or fatality. Even modern medicine recognizes similar medical disorders of the foot attributed to prolonged exposure to wet, and muddy conditions. Such diseases are medically termed as Trench foot, Warm water immersion foot syndrome, Paddy foot, Non- freezing cold injury and Athlete foots and they may well be comparable to *Alasaroga* as they share similar etiopathogenesis. All these diseases clarify the injurious pathophysiology associated with prolonged exposure of feet to wet, muddy and humid conditions. The aforementioned various circumstances, situations, or settings not only establish a common pathophysiology, but also results in a diverse nomenclature leading to differential diagnoses. In conclusion, *Kshudra-roga* signifies easily manageable diseases however under certain circumstances they can progress to a very severe or fatal condition. A good example is *Alasaroga*, where a minor ulceration of interdigital clefts might worsen to foot amputation. Trench foot, Warm water immersion foot syndrome, Paddy foot, Non-freezing cold injury, and Athlete's foot all are comparable to *Alasaroga*. Collectively they clarify that the extent and duration of the exposure to the water, humidity seems t determine the injury and outcome of this disease. The specific setting in which the exposure occurs, helps to reach the varying diagnostic nomenclature.

Keywords: *Alasaroga, Kshudra-roga, Maharoga*, Non-Freezing Cold Injury, Trench foot, Warm Water Immersion foot syndrome

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Antimicrobial resistance, environmental contamination, climate change, biodiversity, and habitat loss

Abstract ID - 26

Training monks and laymen for environmental sustainability: Buddhist insights

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The United Nations has underscored the urgency of addressing sustainability goals amid the alarming environmental crisis. This study explores the application of the Buddhist principles of reduce, reuse, and recycle (3R) in the context of environmental sustainability and contamination. Research employs a qualitative methodology, analysing primary Buddhist sources, scholarly articles, and relevant publications. Buddhism promotes mindful consumption, training the use of resources within the limit of need, thus aligning with the principle of 'reduce'. Monastic rules prohibit deforestation and pollution, reflecting an inherent respect for the environment. The principle of 'reuse' is evident in monastic practices such as repairing and reusing bowls and robes. By cultivating mindfulness and an understanding of the consequences of one's actions, adherents seek to preserve the environment and promote overall wellbeing. 'Recycle' is embodied in the transformation of discarded clothes into robes, bed sheets, and other items, demonstrating resource efficiency. These practices contribute to environmental, physical, and mental wellbeing. Study underscores the relevance of these practices in the current environmental crisis, marked by a surge in plastic production around 400 million tons in 2021. Despite the convenience of plastics, their adverse post-usage impact necessitates alternatives and adherence to the 3R concept. The study argues for the reduction of contamination usage through the application of Buddhist 3R practices, which involve controlling desires and understanding the negative consequences of actions. While these practices were originally intended for monks, they are applicable to laypeople in achieving environmental sustainability and reducing pollution. Research presents a compelling case for the integration of Buddhist 3R practices into contemporary strategies for environmental sustainability. By aligning with Buddhist principles, individuals can contribute to environmental sustainability and mitigate the harmful impacts of contamination on human health and the planet.

Keywords: Buddhism, Environmental sustainability, Training, Contamination

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Abstract ID - 36

Growth inhibition of *Malassezia* species by selected medicinal plant extracts: A potential application for dandruff

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Dandruff is a prevalent and often distressing scalp disorder, affecting nearly 50% of the global population. The clinical symptoms include excessive flaking of scalp skin, dryness, irritation, and itch. Although this is not a critical clinical condition, it can cause various adverse effects including damaging self-esteem, lowering confidence, and social embarrassment. Abundance of fungal colonization on scalp, sebaceous secretion levels, frequent exposure to sunlight and long-term use of certain cosmetic products contribute substantially to occurrence of dandruff. The primary culprits behind dandruff are the *Malassezia* yeasts; *Malassezia globosa*, *Malassezia restricta,* and *Malassezia furfur*, being the most prominent species isolated from dandruff scalps. Although synthetic anti-dandruff products may initially attract consumers, their prolonged usage often leads to various adverse effects. Consequently, herbal anti-dandruff solutions present promising alternatives due to their minimal side effects and skin-friendly properties. The main objective of the study was to test the growth inhibition effects of selected medicinal plant extracts on *Malassezia* species. An agar well diffusion assay was performed using standardized aqueous isopropyl alcohol (IPA) extracts of 20 different plants against *M. globosa*, *M. restricta* and *M. furfur*. Test was carried out in three replicates and the values were reported as mean ± standard deviation. ANOVA and Tukey pairwise comparison with 95% confidence interval was used to determine significant differences among the individual and combined extracts separately. At 200 mg/mL concentration, *Phyllanthus emblica* L. (nelli) fruit and *Elaeocarpus serratus* L. (veralu) leaf extracts had zones of inhibition ≥ 2.5 cm for all three microorganisms which was significantly higher than other plant extracts. Plant extracts which showed growth inhibition of *Malassezia* sp. at 100 mg/mL concentration were used to prepare dual combinations of extracts and effectiveness of combinations was determined by a checkerboard analysis. Considering results for all microorganisms, eight combinations exhibited synergistic effects, 25 had additive effects while 17 were antagonistic.

Keywords: Anti-dandruff activity, dandruff, *Malassezia*, medicinal plant extracts

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Abstract ID - 65

A review on *Persea americana* (avocado) seed extracts: Harnessing waste to combat antimicrobial resistance

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Antimicrobial resistance (AMR) poses a significant threat to global health, compromising the effectiveness of existing antibiotics and endangering public well-being. This study introduces a novel approach to tackling AMR by exploring the untapped potential of *Persea americana* (avocado) seed waste, an abundant yet underutilized by-product of food consumption. Annually, the world produces 1.3 billion tons of food waste, with avocado seeds making up a considerable portion. These seeds are identified as a rich source of bioactive compounds, including flavonoids, alkaloids, tannins, and saponins, known for their extensive health-promoting properties. Innovative extraction techniques have uncovered the potent antimicrobial capabilities of these seeds, particularly efficacy against a wide array of pathogenic bacteria, fungi, and protozoa that are resistant to traditional antibiotics. Researchers employed advanced extraction techniques to isolate bioactive compounds from avocado seeds. Extensive research has been conducted on extractions using both polar and non-polar solvents. Notably, promising results have been obtained from extractions using chloroform and acetone. The extracts underwent antimicrobial susceptibility testing against a range of clinically significant pathogens including *Neisseria gonorrhoeae, Staphylococcus aureus*, non-tuberculous mycobacteria, and drug-resistant *Mycobacterium tuberculosis.* In addition, fungal species such as *Candida* spp., *Cryptococcus neoformans,* and *Malassezia pachydermatis* have shown inhibition by these extracts. The findings of this study highlight the promising antimicrobial potential of avocado seed waste, addressing both public health and environmental sustainability concerns. Discovering bioactive compounds with activity against drug-resistant pathogens is a crucial step against AMR. The utilization of innovative extraction techniques underscores the importance of exploring natural sources for eco-friendly drug discovery. Furthermore, the circular economy approach advocated in this research promotes the efficient utilization of food waste for valuable purposes, aligning with sustainable development goals. Avocado seeds offer potential antimicrobial compounds obtained using sustainable extraction methods for combating AMR, with robust activity against resistant pathogens. This study emphasizes the significance of utilizing natural resources for innovative solutions in public health and environmental sustainability.

Keywords: Antimicrobial resistance, Avocado seeds, Eco-friendly drug, Food waste, Phytochemicals

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Abstract ID - 69

Advances in penicillin-producing fungi and enzymes: A review

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This review explores recent advancements in discovering and characterizing penicillin-producing fungi and enzymes, based on prior study findings. Advancements in biotechnology have led to significant progress in penicillin production, focusing on identifying and characterizing penicillin-producing fungi and enzymes. Among *Penicillium* species, *Penicillium chrysogenum* is the most extensively researched and approved fungus for industrial-scale penicillin production. Molecular biology techniques, microscopic examination, and comparisons of growth kinetics possess are used for the identification of these fungi. Besides identification, prior research has highlighted the advanced fermentation methods and optimized culture conditions for penicillin production by enhancing efficiency and yield of penicillin synthesis. Moreover, extraction techniques including cell disruption and solvent extraction are used for crude enzyme extraction, laying the way for subsequent processing and purification. The characterization of penicillin enzymes is vital for understanding their properties and bioactivities. Based on previous studies, traditional methods such as Fourier Transform Infra-Red Spectroscopy (FTIR), UV-Vis spectrophotometry are crucial in characterizing penicillin enzymes, providing insights into their spectrum properties, which are crucial for understanding catalytic processes and substrate selectivity. Furthermore, based on prior findings, activity of extracted penicillin can be assessed through diffusion methods like disk diffusion, antibiotic susceptibility testing, and E-tests, which help explore antimicrobial resistance among normal flora. This review underscores the significance of utilizing existing research to advance penicillin production and effectively address global healthcare needs.

Keywords: Antibiotic susceptibility test, Fungi, Penicillin, UV-Vis spectrophotometry

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Abstract ID - 88

Formulation and characterization of nanosuspension of *Camelia sinensis* extracts and evaluation of the antimicrobial activity

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This study was aimed to assess the antimicrobial activity of the extracts of selected commercial forms of *Camellia sinensis* in Sri Lanka (black, green, white tea), to formulate nanosuspensions of *C. sinensis*, to analyze the particle size and morphological characterization of synthesized nanosuspensions, and to evaluate novel suspensions for antimicrobial activity. Green tea, white and black tea samples were tested against *Escherichia coli* and *Staphylococcus aureus* separately. Using Soxhelt apparatus the secondary metabolites were separated, and the crude samples were used for further polymerization to obtain nanosuspensions. The maximum concentration used for *S. aureus* was 60.0 mg/mL of crude samples. Nanosuspensions showed MIC for both strains. The highest zone of inhibition was recorded for black crude. Both black and white tea samples with polyvinylpyrrolidone (PVP) indicate highest zones. White tea with sodium alginate (SA) nanosuspension showed the highest zone of inhibition against *S. aureus*. All crude nanosuspensions showed 120.0 mg/mL against *E. coli*. With PVP green tea had the lowest MIC against *S. aureus*. All nano suspension with SA showed a MIC concentration of 45.0 mg/mL. MIC values for *E. coli* were reported as 45.0 mg/mL for both black and white crude tea samples while 90 mg/mL for green tea crude samples. MIC with PVP is 22.5 mg/mL for both black and green tea crude samples while 45.0 mg/mL for white tea. With SA only green tea showed an inhibition at 90.0 mg/mL concentration.

Keywords: *Camellia sinensis*, *C. sinensis*, minimum inhibitory concentrations, nanosuspensions, polyvinylpyrrolidone (PVP), sodium alginate (SA).

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Abstract ID - 103

A baseline assessment on the butterfly diversity of University of Vavuniya, Pampaimadu, Sri Lanka

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The study was carried out at the University of Vavuniya at latitude of 8.7585N and longitude of 80.4951E. Main objective of this study was to identify and document the butterfly species present on the university premises, characterizing their distribution across various habitats including canopy, understory, glades, mud puddles, and common host plants, and to classify the observed butterfly species into their respective families with a focus on identifying dominant families and any endemic or threatened species. Sampling of butterflies was done through opportunistic observation from July 2022 to October 2023. Observations were carried out in the mornings from 7.00 to 8.30 and the evenings from 15.30 to 16.30 under favorable weather with mild wind on each sampling day. Images of the butterflies were captured using mobile phones and DSLR cameras and identified using butterfly guides. A total of 84 butterfly species were identified during the study, all were identified at the species level. The most dominant family was Lycaenidae, representing 34.52% of all butterflies, followed by Papilionidae, Hesperiidae, Pieridae, and Nymphalidae, which accounted for 9.52%, 9.52%, 13.09%, and 32.14% of the total species, respectively. The least represented family was Riodinidae, comprising 1.19% of all butterfly species. The only endemic species discovered was *Appias galene* from the family Pieridae. *Papilio crino*, *Spindasis schistacea*, and *Byblia ilithia* were observed as "vulnerable" according to the IUCN Red List 2012. Additionally, *Junonia orithya* and *Colotis etrida* were identified as "near threatened." The largest butterfly recorded was *Papilio polymnestor*, while the smallest Sri Lankan butterfly was *Freyeria putli*. The University of Vavuniya boasts a significant butterfly population due to minimal building coverage and a robust host plant population, making it an ecologically favorable microhabitat for butterflies. This study will enhance eco-friendly development initiatives to support butterfly diversity at the Vavuniya University.

Keywords: Butterfly, Hespariidae, Lycanidae, Reodinidae, University of Vavuniya

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Abstract ID - 113

Antimicrobial activity of endophytes isolated from *Mikania cordata*: A scientific explanation to traditional use of the plant

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Mikania cordata (wathu palu) is a plant which is traditionally used to treat wounds and its wound healing potential has been elucidated by scientific studies. The wound healing potential is due to the antimicrobial property of the plant and many studies have proven the antimicrobial potential of the plant. This antimicrobial property may be arising either from plant metabolites or endophytic secretions. Previous studies have confirmed the antimicrobial activity of the plant extract against pathogens. In the present study, fungal endophytes were isolated from the leaves and stem of *M. cordata* (Location - 6.857025°, 79.887584°) and their antimicrobial activity was assessed against some selected bacterial and fungal pathogens. From endophytic isolation, 14 morphologically distinct fungal cultures were isolated. Agar disc diffusion assay was conducted to assess antimicrobial activity. Among the isolates, isolate M_b has shown antimicrobial activities against *Staphylococcus aureus* and methicillin resistant *S. aureus* (MRSA) (halozone diameters of 10±1 mm and 9±1 mm respectively), M_j against *Candida parapsilosis*, *C. glabrata and S. aureus* and the mean halo zone diameters were 18±3 mm, 11±2 mm and 7±1 mm respectively. M_c exhibited antimicrobial activity against *C. glabrata*, *C. parapsilosis*, *S. aureus* and MRSA with halo zones of diameter 8±1 mm, 7±2 mm, 7±1 mm and 6±1 mm respectively. The diameters of the halo zones by M_d against *C. glabrata*, *C. parapsilosis*, MRSA, *S. aureus* was 10±1 mm, 9±2 mm, 6±1 mm and 7±1 mm respectively. The halo zone diameters were compared using two-sample t-tests ($p \leq 0.05$) with the antibiotic gentamycin for bacterial pathogens (18±1 mm and 11±1 mm for *S. aureus* and MRSA respectively), and fluconazole for fungal pathogens (22±3 mm, 0 mm, 26±2 mm *C. parapsilosis*, *C. albicans*, *C. glabrata* respectively). None of the isolates demonstrated antimicrobial activity against *C. krusei*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Enterococcus faecalis* and *Klebsiella pneumoneae*. Based on these results it can be concluded that endophytes secrete potential antimicrobials, and these compounds might indirectly be involved in the wound healing property of the plant.

Keywords: Antimicrobials, Endophytes, *Mikania cordata*, Wound healing property

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Abstract ID - 130

Evaluation of the antibacterial activity of Plectranthus zeylanicus and Plectranthus amboinicus against Staphylococcus aureus

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Antimicrobial resistance (AMR) is a significant public health concern, posing challenges to disease prevention and treatment. The adaptive evolution of *Staphylococcus aureus* in response to antibiotics underscores the urgent need for finding alternative antibacterial agents. This study aimed to evaluate the antibacterial activity of two medicinal plants, *Plectranthus zeylanicus,* and *Plectranthus amboinicus*, against Methicillin-sensitive *Staphylococcus aureus* (MSSA) and Methicillin-resistant *Staphylococcus aureus* (MRSA). The whole plants of *P. zeylanicus*, and *P. amboinicus* were cleaned, pulverized, and macerated the resulting coarse powder in distilled water for 24h at room temperature to prepare the aqueous extracts. Filtered extracts were oven-dried at 45 °C. Well-diffusion method (well-diameter=8mm) was performed to evaluate the antibacterial activity of 500 mg mL^{-1} (150 µL per well) of the aqueous extracts of *P. zeylanicus* and *P. amboinicus* by measuring the inhibition zone diameter (IZD). This was done in triplicates, with ciprofloxacin (2 mg mL^{-1}) and distilled water served as the positive and negative controls, respectively. The aqueous extract of *P. zeylanicus* exhibited significant inhibitory effects ($p<0.05$, 95% Cl) on both MSSA (IZD=12.11 ± 0.19mm) and MRSA (IZD=10.77 ± 0.38mm) growth, compared to the negative control (IZD=0mm), whereas no inhibition zones were observed for *P. amboinicus*. Ciprofloxacin exhibited substantial inhibition ($p<0.05$, 95% CI) against MSSA (IZD=41.39 ± 0.34mm) and MRSA (IZD=38.16 ± 0.28mm). The combination of *P. zeylanicus* and *P. amboinicus* extracts mirrored the effect of *P. zeylanicus* alone. Additionally, *P. zeylanicus* and its combination with *P. amboinicus* extracts exhibited higher activity against MSSA than MRSA ($p<0.05$, 95% CI). In conclusion, the aqueous extract of *P. zeylanicus* demonstrated potent inhibitory effects against *S. aureus*, with greater activity against MSSA than MRSA highlighting the potential of *P. zeylanicus* as an alternative antibacterial agent to combat AMR.

Keywords: Antibacterial activity, Methicillin-resistant *Staphylococcus aureus,* Methicillin-sensitive *Staphylococcus aureus*, *Plectranthus amboinicus*, *Plectranthus zeylanicus*

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Abstract ID - 159

Exploring the nutritional composition and medicinal significance of *Olax zeylanica* and *Canthium coromandelicum:* A comparative analysis

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Olax zeylanica (malla) and *Canthium coromandelicum* (kara) are both revered in traditional medicinal practices for their therapeutic attributes. This investigation delves into their medicinal significance, correlating it with their intricate nutrient profiles. The study aimed to evaluate the nutritional composition of two underutilized vegetable (UUV) species in Sri Lanka, while examining their medicinal significance. Fifty households in Harispattuwa Divisional Secretariat were surveyed and data were collected on consumption and awareness of UUVs. Bradford assay, Phenol-sulphuric acid method and UV spectroscopy were employed to determine total protein, carbohydrate, crude fiber, and vitamin C content, respectively. Mineral analysis was conducted using atomic absorption spectroscopy. Statistical analysis was conducted on the results using ANOVA and post-hoc Tukey's test. A detailed nutrient composition analysis delineates distinct profiles for each species. *O. zeylanica* exhibits notable quantities of protein (5%), carbohydrates (14%), and exceptionally high levels of dietary fiber (68%) and significant concentrations of vitamin C (54 mg/100g) and vital minerals such as calcium (Ca), iron (Fe), and potassium (K) at 23 mg/100g, 21 mg/100g, and 15 mg/100g, respectively. In contrast, *C. coromandelicum* showcases a lower protein content (2%) and carbohydrates (8%) while harboring considerable crude fiber content (26%) and vitamin C content (41 mg/100g). Essential minerals in *C. coromandelicum*, with calcium (Ca) recorded at 86 mg/100g, iron (Fe) at 52 mg/100g, and potassium (K) at 86 mg/100g. The nutrient profiles of the given two species underscore their medicinal significance. *O. zeylanica*'s high protein, carbohydrate, and dietary fiber content, coupled with substantial vitamin C and essential mineral concentrations, suggest potential benefits for gastrointestinal health, antioxidant activity, and overall vitality. Similarly, fiber-rich composition of *C. coromandelicum*, along with notable levels of vitamin C and essential minerals, implies potential for promoting gastrointestinal well-being and bolstering the body's antioxidant defenses. These attributes support their traditional medicinal uses and advocate for their integration into modern healthcare practices.

Keywords: *Olax zeylanica* (malla), *Canthium coromandelicum* (kara), underutilized species

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Abstract ID - 168

Harnessing the antimicrobial potential of *Zingiber officinale* against antimicrobial resistance

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Antimicrobial resistance is a global health crisis that renders antimicrobial drugs ineffective and poses significant risks to public health. The development of alternative therapies is highly important and required for bacterial infections against antimicrobial resistance and natural products such as plant-derived compounds have gained attention as potential sources of antimicrobial agents. Among these *Zingiber officinale*, commonly known as ginger, has garnered attention for its diverse pharmacological properties, including antimicrobial activity. Ginger, belonging to the Zingiberaceae species, contains several key phytochemicals such as gingerol, shogaol, and paradol, which exhibit various pharmacological actions including bactericidal, anti-bacterial, and anti-inflammatory effects, making them potential candidates for combating antimicrobial resistance. This review article elucidates the significant antimicrobial activity of lead phytochemicals extracted from *Zingiber officinale*, discussing their mechanisms of action and synergistic effects against a spectrum of resistant pathogen. These compounds act through various pathways in bacteria, including disruption of cell membrane integrity, inhibition of vital enzymes, and modulation of bacterial gene expression. Moreover, synergistic interactions between ginger-derived compounds and conventional antibiotics, highlight the potential for combination therapies to enhance antimicrobial efficacy and combat antimicrobial resistance. Data for this article has been collected through reputed journals, books, and reports through web sites such as Google scholars, PubMed and Research gate. In conclusion, this study demonstrates the potential of lead phytochemicals from *Zingiber officinale* as promising candidates for combating antimicrobial resistance.

Keywords: Antimicrobial resistance, Anti-bacterial, Phytochemicals, *Zingiber officinale*

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Abstract ID - 173

Identification of antibiotic resistant bacteria in effluent water of medical and surgical wards in the Teaching Hospital Peradeniya, Sri Lanka

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Antibiotic resistance is an urgent public health concern worldwide. Hospital wastewater acts as hotspot for antibiotic resistant bacteria. Wastewater discharged from clinical wards housing patients recovering from infections tends to harbour antibiotic resistant bacteria. This research was designed to describe the antibiotic resistant bacteria in surgical and medical wards of Teaching Hospital Peradeniya, Sri Lanka. Fifteen mL of wastewater was collected from the effluent drain into sterile universal bottles. Samples were collected from surgical and medical wards and the psychiatry ward. Five different antibiotics [ciprofloxacin (CIPRO), clindamycin (CLINDA), amoxicillin (AMOX), norfloxacin (NOR), levofloxacin (LEVO)] were selected based on hospital inpatient pharmacy records as they had prescribed frequently to treat bacterial infections. The samples were inoculated in nutrient broth with antibiotics at the concentration of 60 µg/mL (according to the previously published work) in a 96 well plate. According to the optical density measurement, growth was observed. Triplicates of this assay were done at different times. These positive culture samples were transferred from 96 well plates to petri dishes and grown using pour plate method with the presence of all five antibiotics separately. Bacteria that were able to grow in the presence of all five antibiotics at 60 µg/mL were observed in all wards except in one surgical ward. Samples from this ward yielded bacteria resistant to CLINDA, CIPRO and AMOX only. Therefore, 100% resistance was observed for CLINDA, CIPRO and AMOX by all the wards. Twenty two organisms were isolated. Most of the bacteria were Gram negative (90.9%) while others were Gram positives (9.1%). Therefore, this study concluded the presence of antibiotic resistant bacteria in hospital wastewater effluent against the antibiotics CLINDA, CIPRO, AMOX, NOR and LEVO. This method can be used to rapidly identify the resistant bacteria. Further identification is needed along with confirmatory susceptibility testing.

Keywords: Antibiotic resistance, Hospital wastewater effluent

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Abstract ID - 176

Evaluating the efficacy of antimicrobial activity of five herbal oleoresins against acne causing *Propionibacterium acne*

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Acne vulgaris is a skin disorder that is primarily found affecting the facial area although it can also affect the upper arms, trunk, and back among millions of people worldwide. It not only affects physical appearance but also significantly impacts an individual's quality of life, causing distress and lowering self-esteem. Acne vulgaris is mainly caused by a gram-positive bacterium, *Propionibacterium acne*. This bacterium instigates an inflammatory response, culminating in the formation of diverse acne lesions. Effective acne control methods are essential to alleviate these negative effects and promote overall well-being. While both herbal and synthetic drugs are used to treat acne vulgaris traditional herbal remedies have garnered attention for their potential in acne management because of their perceived safety and efficacy. This study was conducted to evaluate the efficacy of the antimicrobial activity of five herbal oleoresins against acne-causing *Propionibacterium acne* and the development of face serum. Acne lesion samples were collected from 4 patients and *P. acne* was isolated and purified using unique colony morphology and biochemical characterization (Catalase test, Gelatin hydrolysis and Methyl red test). Antimicrobial activity was tested for the five oleoresins of *Camellia sinensis, Ocimum tenuflorum, Senna alata, Curcuma longa,* and *Plectranthus amboinicus* extracted by solvent extraction method. The agar well diffusion assay method was used and the antimicrobial activity was evaluated by measuring the inhibition zone diameter. The resulting data was analyzed using one-way ANOVA to compare the effectiveness of all oleoresins followed by Tukey pairwise comparisons at a 95% confidence level to determine significant differences among the treatments. The plant oleoresins of *C. longa, C. sinensis, S. alata*, *P. amboinicus, O. tenuflorum* showed significantly a high activity against P. acnes with an inhibition zone diameter of 2.43 cm, 2.60 cm, 2.66 cm, 2.71 cm and 2.73 cm respectively as compared to control (2.81 cm). According to Tukey pairwise comparisons *C. longa* showed the highest antimicrobial activity followed by *C. sinensis* against the *Propionibacterium acne*. Hence, the present study concludes that *Curcuma longa* and *C. sinensis* have a good potential to be used in herbal facial application products designed for acne-prone skin.

Keywords: Acne care, Acne vulgaris, antimicrobial resistance, Herbal cosmetics

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Abstract ID - 197

Antibacterial activity of *Azadirachta indica* leaves extract: An in-vitro study

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Azadirachta indica (Neem) leaves are commonly used in traditional medicine in the management of infectious diseases. Increasing antimicrobial resistance in many pathogenic microbes has led to the search for long lasting remedies. There is a lack of studies on antimicrobial activity of *Azadirachta indica* leaves aqueous extracts. The aim of the study is to examine antimicrobial properties of leaves extracts of *Azadirachta indica* against some selected microorganisms. The plant leaf extracts were obtained in two different solvents (aqueous (A) and ethanol (E)). Zone of inhibition of more than 8 mm was considered as sensitive using CLSI disc diffusion method. Chloramphenicol disc (30 µg) was used as the positive control. The pathogenic isolates were *Staphylococcus aureus, Klebsiella sp, Escherichia coli and* Methicillin Resistance *Staphylococcus aureus. Klebsiella sp* (E-16mm, A-14mm) showed highest zone of inhibition than other organisms (*Staphylococcus aureus* (E-6mm, A-6mm)*, Escherichia coli* (E-11mm, A-13mm) *and* Methicillin Resistance *Staphylococcus aureus* (E-10mm, A-13mm)). This study revealed that the aqueous extract of *Azadirachta indica* leaves contains antimicrobial activity than ethanol extract. Further studies are needed to continue assessing different concentrations, solvents and clinical samples.

Keywords: *Azadirachta indica* leaves extract, antibacterial activity, *and Staphylococcus aureus*

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Abstract ID - 275

Therapeutic potential of *Suaeda maritima* arial and root extracts as a novel anti-inflammatory and antibacterial agent

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Suaeda maritima, a halophyte plant, exhibits potential medicinal properties attributed to its phytochemical composition, including anti-inflammatory, antimicrobial, and antioxidant effects. Its traditional use in treating various acute diseases suggests promising avenues for scientific exploration into its therapeutic applications. However, the present study was aimed to investigate the antibacterial activity and anti-inflammatory activity of *Suaeda maritime* using *in vitro* methods. The plant extracts from both the aerial parts and roots of *Suaeda maritima*, harvested from the Seguwantivu area of Puttalam, Sri Lanka, were prepared using sequential extraction with hexane, dichloromethane (DCM), and methanol at ambient temperature via cold maceration. The anti-inflammatory effects and antibacterial activity were evaluated *in-vitro*. Anti-inflammatory activity was evaluated by human red blood cell membrane stabilization method. The methanol extract from aerial parts of *Suaeda maritima* (concentration of 1.0 mg/mL) demonstrated significantly strong membrane stabilizing activity (IC_{50},33.37 ± 0.76 µg/mL), whereas their DCM and hexane extracts revealed moderate activity (IC_{50}, 52.28± 0.85 µg/mL and IC_{50}, 37.69 ± 1.61 µg/mL respectively) compared to the positive control aspirin, which showed IC_{50}, 53.50± 0.31 (at 1 mg/mL) protection in this assay. Antibacterial activity of *Suaeda maritima* was also performed and the minimum inhibitory concentration was determined for 2 µg/mL concentration and tetracycline in 0.5 µg/mL as a control against four different oral pathogens: *Bacillus subtilis, Pseudomonas aeruginosa, Escherichia coli*, *Staphylococcus aureus* by following well diffusion method. *S. maritima* exhibited inhibitory activity. The greatest activity was observed for the hexane extract of the root against *E. coli.* (inhibition zones, 1.73 ± 0.05 cm) compared to the positive control which showed 1.96 ± 0.05 cm. Methanol and DCM extracts of the root showed moderate inhibition zones against *E.coli.*(1.56 ±0.05 cm, 0.86 ±0.05cm respectively). In conclusion, the polar fraction of the areal parts of *S. maritima* possesses a relatively high anti-inflammatory property whereas, the highest antibacterial properties are shown by the non-polar fraction of the root parts of *Suaeda maritima.*

Keywords: Halophytes, Antibacterial, Anti -inflammatory, *Suaeda maritima*, well diffusion

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Abstract ID – 280

Synergistic antifungal efficacy of *Dillenia retusa* and *Senna alata* combinations against superficial mycoses-causing fungal pathogens

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Superficial mycoses are a major global health issue caused by opportunistic pathogens. The study aimed to test the antifungal effects of parts of *D. retusa* and *S. alata* and their combined potential against superficial mycosis-causing fungi. *D.retusa* methanolic extraction (maceration) and *S. alata* acetone extraction (maceration) were evaluated against specific fungi: *Candida albicans*, *Candida tropicalis*, *Trichophyton rubrum*, *Trichophyton mentagrophytes*, and *Epidermophyton floccosum* using well diffusion assay, minimum inhibitory concentration (MIC), and minimum fungicidal concentration (MFC). Both *D. retusa* fruits methanolic-extract and *S. alata* leaves acetone-extract were combined in different concentration ratios, tested against the selected fungi, and calculated Fractional Inhibitory Concentration Index (FICI). All tests were conducted in triplicate and compared to a negative control (9.00mm) using R at a 5% significance level. *D. retusa* fruits methanolic-extract and *S. alata* leaves acetone-extract respectively exhibited antifungal activity with notable zones of inhibition against *T. rubrum* (38.7±0.6 mm, $p<0.001$) and *E. floccosum* (32.7±2.7mm, $p=0.06$, 18.75±0.90mm, $p<0.001$). *D. retusa* bark methanolic-extract and *S. alata* bark acetone-extract respectively showed significant antifungal activity only against *E. floccosum* (13.3±0.6 mm, $p=0.024$;15.7±0.6mm, $p<0.001$). The extract of *D. retusa* fruits and bark respectively demonstrated MIC/MFC against *C. albicans* (no,0.6gml^{-1}) and *T. mentagrophyte* (no,0.0156gml^{-1}), but against *C. tropicalis* (0.8gml^{-1},0.4gml^{-1}), *T. rubrum* (0.5 gml^{-1},0.25gml^{-1}), and *E. floccosum* (0.00gml^{-1},0.02gml^{-1}). The extract of *S. alata* leaves and bark respectively demonstrated MIC/MFC for *C. albicans* (0.8gml^{-1},0.6gml^{-1}), *C. tropicalis* (0.5gml^{-1},0.5gml^{-1}), *T. rubrum* (0.5gml^{-1},0.0625gml^{-1}), *T. mentagrophyte* (No ,0. 6gml^{-1}), *E. floccosum* (0.00gml^{-1},0.00gml^{-1}). *D. retusa* bark and *S. alata* leaves were found to be the most effective and efficient parts. The combination of both extracts provided a synergistic effect on *C. albicans* (FICI=0.12), interaction of additivity on *T. rubrum* (FICI=1.0078) and antagonistic effect on *T. mentagrophytes* (FICI=32.5) and *E. floccosum* (FICI=8.47). *D. retusa* and *S. alata* extracts have potent antifungal properties for combating superficial mycosis. The combination of extracts exhibited superior antifungal activity against *Candida* species and dermatophytes.

Keywords: Antifungal activity*, Dillenia retusa*, Fungal pathogen*, Senna alata*, Superficial mycosis

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Sustainable cultivation, organic farming, conservation, and propagation of medicinal plants

Abstract ID - 09

Vegetative propagation potential of a *Cinnamomum verum* J. Presl collection for distinct leaf oil compositions

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Ceylon cinnamon (*Cinnamomum verum* J. Presl) is of utmost importance in medicinal properties. Distinct essential oil compositions are important for pharmaceutical and cosmetic products of cinnamon. Elite plant material to the mother plant of distinct chemical composition cannot be obtained from seeds due to cross-pollination. Therefore, releasing a promising cinnamon variety depends on the compatibility of genotype for vegetative propagation (VP). The lack of knowledge on leaf oil yield and composition limits the use of potential genetic resources in breeding and industry. Therefore, this study was carried out to determine the VP potential through shoot regeneration percentage (SR) of 34 accessions from an established cinnamon collection at University of Ruhuna. Cinnamon cuttings with 50 replicates for each accession were used for shoot regeneration during August-September 2021 following the recommendations of Department of Export Agriculture for VP. Ten accessions of more than 50% of SR were further evaluated for leaf oil yield and composition. Oil composition was determined by GC-MS. SR of 34 accessions ranged from 4% to 75% with the average of 36%. Ten accessions of KB14, GB13-1, GE7, KE5, KB15, GAM2, KA11, KD2-A, GB17 and GK17 were reported more than 50% of SR. Accession GK17 reported the highest SR. Leaf oil yield of the above accessions ranged from 0.8% (KA11) to 4% (KD2-1). Eugenol (EU) content of the oil ranged from 0.8 to 96%. Seven accessions reported more than 85% of EU with the trace amounts of benzyl benzoate (BB) except for two accessions (KA11 and GB17). KA11 reported the highest BB (72%) while GB17 is reporting the second highest of (56%). The selected ten accessions based on SR would be potential genetic resources in future breeding programs aiming varieties of high yield and quality for specific industries of pharmaceuticals and cosmetics.

Keywords: *C. verum* J. Presl, Leaf essential oil, Shoot regeneration potential, Vegetative propagation

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Abstract ID - 28

Effect of organic manure in ambient and increased temperature conditions on growth and yield of medicinal plant *Ashwagandha* (*Withania somnifera*)

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Ashwagandha or *Amukkara* (*Withania somnifera*), is a prevalent medicinal herb used in traditional medicine. Commercial cultivation of medicinal plants is on the rise due to the increasing threat to their natural habitats caused by global temperature stress. This study aimed to investigate the effect of different organic matter combinations on the growth and yield responses of *Ashwagandha* to ambient and increased temperature conditions. The experiment was conducted in a completely randomized design with three replications. Two-temperature conditions; ambient temperature (27°C - 32°C) and temperature stress (35°C - 36°C); three types of organic manure; 100% compost, 100% cow dung, and a mixture of 50% compost and cow dung were used in the experimental design. The application rate for compost and cow dung was 10 tons ha^{-1} in 100% manure application, while it is half in 50% application. Reddish brown earth soil was chosen as the soil type, and field capacity was maintained through continuous irrigation. Statistical analysis was done using the R 4.3.2 version. According to the results, 100% cow dung application in ambient temperature treatment has shown significantly ($p \leq 0.05$) highest number of leaves, leaf area index, root diameter, fresh shoot weight m^{-2}, and dry shoot weight m^{-2} and 50% compost with 50% cow dung application in ambient temperature has shown significantly ($p \leq 0.05$) highest shoot length, number of branches, number of secondary roots. However, 100% cow dung application treatment has shown significantly the highest root length and fresh root weight m^{-2} while 100% compost treatment gives significantly higher dry root weight m^{-2} in increased temperature treatment at $p \leq 0.05$. Increased temperature conditions are not good for *Ashwagandha*, except when grown with 100% cow dung and 100% compost for root length and root yield. At ambient temperature, *Ashwagandha* grows well with 100% cow dung and 50% compost with 50% cow dung.

Keywords: *Ashwagandha*, Growth, Organic manure, Temperature, yield

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Abstract ID - 32

Effect of straight and compound fertilizers on growth and yield of medicinal plant bush pepper (*piper nigrum* L.)

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Black pepper (*Piper nigrum* L., Family: *Piperaceae*) is one of the most important medicinal crops and an important spice for over 400 years. The crop is cultivated for its fruit, which is usually dried and used as a spice or traditional and modern medicines, nutraceuticals, and other products. High yield of production of pepper is urgently needed to meet the increasing demand. When rooted cuttings of lateral branches (plagiotropic) are used, a pepper bush can be obtained instead of a vine. Considerable interest among urban people has been noted to grow bush pepper in the garden and terrace which in turn increased the demand for planting materials. Technology of bush pepper production is disseminated among export agriculture stakeholders, but not the fertilizer recommendation. Therefore, this study was carried out in the Department of Export Agriculture, Matale to investigate the effect of straight and compound fertilizer for the highest yield and growth of potted bush pepper. Three different fertilizers were selected as treatments, i.e., T1**-**Compound fertilizer (*yara mila*-SOP) – 1g, T2**-**Compound balance fertilizer (15-15-15 N: P: K) – 1g, T3-Straight fertilizer (Urea – 2.5g, *Eppawala* rock phosphate – 25 g and Muriate of potash – 2.5 g). All were mixed into a modified potting mixture of topsoil: sand: coir dust 2:1:1 without cow dung. Control treatment was the modified potting mixture of topsoil: sand: coir dust 2:1:1 without cow dung and fertilizer. The experiment was laid out in a completely randomized design and the four treatments randomized with four replicates. According to the findings, straight fertilizer with Urea – 2.5 g, Eppawala rock phosphate (ERP) – 25 g and Muriate of potash (MOP) – 2.5 g and Compound balance fertilizer (15-15-15 N: P: K) – 1 g showed the significantly ($p<0.05$) highest growth and yield in potted bush pepper. Therefore, it can be recommended as the most suitable fertilizer for sustainable cultivation of medicinal plant bush pepper.

Key words: Bush pepper, Fertilizer, Traditional medicine

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Abstract ID - 34

Effect of organic manure and temperature on the growth of Lunuwila (*Bacopa monnieri* (*L.*) Wettst.)

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Lunuwila (*Bacopa monnieri* (L.) Wettst) is a perennial creeping herb renowned in Ayurveda for its medicinal properties, belonging to the family *Scrophulariaceae.* Traditionally used as a nerve tonic and for mental disorders, *Lunuwila* primarily thrives in aquatic ecosystems, particularly wetlands often exposed to sewage and industrial effluents, as well as heavy metal pollution from rice fields. However, due to environmental degradation and global warming, natural habitats for *Lunuwila* are dwindling, impacting its availability for medicinal use. Therefore, this study is designed to identify suitable organic manure to resist the impact of increased temperature on growth and yield of *Lunuwila.* The study was conducted in the Open University of Sri Lanka Nawala inside a temperature regulated poly tunnel to mimic the global warming and ambient temperature plant house. The experiment was conducted based on complete randomized design (CRD) with three replications. Two factors considered were temperature and organic manures. The two temperature levels were ambient temperature 27 °C - 32°C (T1) and temperature stress 34-35 °C (T2). The three organic manure types were 100% compost (M1) 50% compost with 50% cow dung (M2) and 100% cow dung (M3). All the measured data were analyzed by using the R studio software version 4.21. According to the results, the shoot length, number of leaves, number of branches, average leaf area, leaf area index, root length, secondary roots, fresh weight of roots and dry weight of shoots were significantly higher in temperature stress treatment with 100% compost. However, the stem diameter was high in ambient temperature level with 100% cow dung treatment. There was no significant difference in chlorophyll content among the treatments. Therefore, even in global warming situation with 100% compost is favorable for the sustainable cultivation of medicinal plant *Lunuwila*.

Keywords: *Bacopa monnieri*, Organic manure, Temperature stress

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Abstract ID - 56

Preliminary Review of the pharmacological potential of Xylocarpus rumphii*:* based on Kontalam plants in Wella Dewalya, Sri Lanka

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This study presents a pharmacological potential value of *Xylocarpus rumphii. X. rumphii* is a member of the Meliaceae family and is a critically endangered mangrove swamp plant in Sri Lanka. It is known as "Kontalam" or "Mudu delun" in Sri Lanka. *X. rumphii* primarily inhabits sandy natural rocky shores in the tropics. Generally, this halophyte plant shows a unique adaptation to survive in harsh coastal environments and traditionally has been used for several medicinal purposes. Visual inspection was used to observe the morphological characteristics. The tree structure reaches a height of 8-12 meters and has a strong root system to anchor the shore and absorb nutrients. The leaves are oval to heart-shaped and characterized by fissures on the bark. There is only a small population of Kontalam trees can be found in a few places on the southern coast and also has been reported on a few small islands in the Puttalam lagoon area. The most famous of these are the 4 trees associated with Unawatuna Welle Devalaya. *X. rumphii* has been reported to contain many bioactive compounds with pharmacological potential. It has been revealed from old Ayurvedic books and rumors that parts of the Kontalam plant have been used as the main component of traditional Ayurvedic medicines. It has been used for centuries to treat many human ailments. The seeds of this plant are used to prepare the Ayurvedic medicine called "Gopalugulia" unique to the southern province. "Gopalugulia" is used to treat food poisoning, snake bites, as well as alcohol poisoning. Due to climate change and extensive anthropogenic pressures on coastal ecosystems, *X. rumphii* is becoming an endangered species in Sri Lanka. Therefore, conservation efforts to preserve the remaining *X. rumphii* in Wella Dewalya based on its ecological and Ayurvedic medicinal importance are of utmost importance.

Keywords: Gopalugulia, Halophytes, *Xylocarpus rumphii*

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Abstract ID - 74

Effect of archaea bacterial solution with *panchagavya* on growth and yield of Lycopersicon *esculentum*

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Lycopersicon esculentum is one of the most important vegetable crops cultivated for its fleshy fruits. Due to its unique nutritional content and widespread production, it is widely farmed and recognized as a preventive food. Producing fruits and vegetables organically boosts the inclination to use organic fertilizers. Furthermore, there is a correlation between lessening the negative impact on humans, the environment, and other living beings when organic fertilizers are used effectively. A field experiment was conducted to assess the use of *Panchagavya* and Archaea bacterial solution (ABS) as plant growth and yield enhancers on *Lycopersicon esculentum*. Three replicates were used in the randomized complete block design setup for the experiment. In this experiment, five different ratios of Archaea bacterial solution: *Panchagavya* - T1-1:0, T2-0:1, T3-2:1, T4-1:2, and T5-control (water) were used for treatments. A week after transplanting, foliar applications of ABS and *Panchagavya* were sprayed, and this process maintained until fruit development. The collected data was entered and compiled by using the Microsoft excel program and analysed by using ANOVA. T3 showed better performance with plant height (195.53 cm), average number of leaves per plant (37), average number of branches per plant (9), average number of the flowers per plant (31.33), average number of fruits (25) and mean weight of yield (735 g). In contrast, T5 showed poor performance. Based on the data that were acquired, it can be concluded that the use of ABS: *Panchagavya* at a 2:1 ratio can enhance the growth and yield of *Lycopersicon esculentum*.

Keywords: Growth enhancer, Liquid fertilizer, *Lycopersicon esculentum*

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Abstract ID - 90

Impact of *Mimosa pigra*-Derived organic fertilizer on yield parameters of MI-2 chili (*Capsicum annum*)

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Mimosa pigra is an alien invasive species and this study was conducted to prepare and evaluate the efficiency of organic fertilizer derived from *M.pigra* on selected yield parameters of MI-2 chili crops as an alternative solution for control of *M.pigra* from the environment where its colonized. This organic fertilizer was produced by cutting smaller pieces of *M.pigra* before its flowering stage and by keeping them in a pit until they decompose. The complete decomposition process took place within six months. The experiment set up was carried out in a randomized complete block design with five treatments and nine replicates in each. The treatments were fertilizer incorporated with *M.pigra* (MP), fertilizer incorporated with *M.pigra* and $CaCO_3$ (MP+C), fertilizer incorporated with *M. pigra* and inorganic fertilizer (MP+IF) and a negative control (NC). MP+IF was denoted as positive control (PC). Every mixture was produced by the combinations of garden soil, goat manure and sand in the ratio of 2:2:1. Analysis of Variance and Duncan's multiple range analysis was exploited using Minitab 17 software at 95% confidential interval. The number of flowers, pods and seeds per pods were counted weekly. According to the findings, crops treated with MP showed significantly high ($p<0.001$) mean number of pods (10.17), mean number of harvested pods (4.622), average weight of pods (8.28 g), pods length (4.384 cm), diameter of pods (0.8540 cm) and the number of seeds per pod (38.00) at $p<0.05$. However, there was no significant difference ($p=0.48$) in the mean number of flowers compared to control. In conclusion, *M.pigra* derived fertilizer may promote environmental-friendly agriculture, the effective utilization of invasive alien species and provide better solutions for the current scenario in Sri Lanka as a management practice of controlling invasive alien species.

Keywords: Environmental-friendly agriculture, Invasive alien species, *Mimosa pigra*, Organic fertilizer

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Abstract ID - 91

Systematic study of organic liquid fertilizer extracted from seaweeds and wastage of Tobacco

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Seaweeds are commonly used for fertilizers due to their high nutrient availability, which contributes to healthier soil and supports microorganisms. As an island, Sri Lanka has the ability to easily obtain seaweeds both naturally and through cultivation. Therefore, the aim of this study is to produce fertilizer using seaweed and other organic materials and evaluate the effect of it on crop cultivation. Based on previous studies, it was determined that *Sargassum crassifolium* (brown algae) is suitable to produce liquid fertilizer by considering its nutrient availability with micronutrients, minerals, growth hormones as well as the NPK (nitrogen, phosphorus, and potassium). Wastage of tobacco was used to meet the intermediate NPK requirement and the combination of *Sargassum* sp. and wastage of tobacco can make a liquid fertilizer that is rich in plant growth materials. During the production of fertilizer, seaweeds and wastage of tobacco were collected and washed, cleaned, and extracted separately by using fresh water and both extractions were stored separately and mixed up into ratio of 1:1. After the preparations, the fertilizer was used on the cultivar to determine how it affects the growth of plants. The stalks were planted separately with 12 replicates for each pot, with chemical fertilizer applied to pot 01, liquid organic fertilizer applied to pot 02, and the remaining one was kept without adding fertilizers, and the growth of the stalks was measured weekly based on height differences. During the considered period, the stalks in both pot 01 and pot 02 grew up very well and yielded well. In conclusion, this study investigates the organic liquid fertilizer derived from *S. crassifolium* (brown algae) and wastage of tobacco and measures the impacts of fertilizer on plant growth. Through systematic measurements, assess the promoting of these organic fertilizers in plant development, providing insights into sustainable agricultural practices.

Keywords: Brown algae, Organic fertilizer, Plant growth

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Abstract ID - 184

Comprehensive approach to indigenous knowledge for sustainable medicinal plant conservation

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Medicinal plants have been vital in traditional healthcare for millennia. Preserving their diversity is crucial for sustainable healthcare and biodiversity. Indigenous knowledge rooted in local wisdom plays a vital role in safeguarding these plants, fostering a sustainable coexistence with the environment. The objective of this article is to compile the indigenous knowledge system in sustainable medicinal plant conservation and to analyze threats to medicinal plants, incorporating insights from both indigenous and scientific perspectives for effective conservation of medicinal plants. Data was collected from a variety of sources including academic journals, books and reports *via* reputable websites such as Google Scholar, PubMed and ResearchGate. The search employed terms such as conservation, sustainable, indigenous knowledge, and medicinal plants focusing on articles published from 2005 onwards. Medicinal plants face threats from habitat loss, overharvesting, exploitation etc. This study evaluates the impact of these threats on medicinal plant populations and biodiversity. Indigenous methods like selective harvesting, domestication, seasonal harvesting, agroforestry, rotational harvesting, regeneration techniques and conservation through sacred groves, contribute to the preservation of biodiversity. For example, agroforestry enhances biodiversity and soil fertility while rotational harvesting maintains healthy plant populations and preserves genetic diversity. Preservation and documentation of indigenous knowledge and their practices passed down through generations within indigenous communities is important. A comprehensive conservation framework that integrates indigenous knowledge with scientific approaches is crucial, showcasing synergies between traditional practices and modern strategies for the medicinal plant conservation. Modern conservation strategies can complement indigenous methods by providing scientific validation, enhancing resource management, and fostering collaboration. These strategies address threats and promote sustainability. Finally, this study compiles indigenous practices and integrates them with scientific knowledge for robust medicinal plant conservation. It also reveals threats, highlighting the risk of extinction.

Keywords: Conservation, Indigenous knowledge, Medicinal plants, Scientific knowledge, Sustainable

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Abstract ID - 190

Analysing ayervedic raw material price fluctuations for sustainable cultivation, conservation and industry sustainability: A decade review

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Ayurveda is an ancient system of traditional medicine rooted in Indian subcontinent where the products mainly derived from plants as well as natural minerals, metals and animal originated raw materials. In recent years Ayurveda medicine has become popular among people throughout the globe due to its minimum side effects. This study has been conducted in a leading Ayurveda manufacturing company in Sri Lanka, gathering and examining the price fluctuations of 410 diverse Ayurveda raw materials over a decade time starting from 2014 to 2024. The research has been conducted by categorizing these raw materials into 8 distinct categories, including imported raw materials (plant based and chemicals), locally grown fresh raw materials, local dried raw materials, imported oils, locally produced oils, local dairy products, and other kinds of miscellaneous raw materials. After a proper organization of the historical data from 2014 to 2024 the price fluctuation of the raw materials under different categories were graphically illustrated. The primary objective of this research was to identify the pattern of price fluctuation in Ayurveda raw materials over the past decade and to identify the critical factors affecting the price fluctuations and also to study the effect of global economic trends, and market dynamics. As per the results of the research, the final analysis has shown that the imported raw materials (both plant based and chemicals) have had a drastic price increase during the 2019 to 2021 period and then until 2024 having a static price fluctuation whereas in locally produced raw materials have shown a consistent price increase with time without drastic changes. As per the background studies the prices have shown a positive correlation with the depreciation of the value of the Sri Lankan rupee over the time and the study also shows a seasonal pattern of the price fluctuation in imported and local plant based raw materials. As per the conclusion, the research provides valuable insights for the Ayurveda practitioners, industry, governing bodies and researchers in order to identify the market trends and make important strategic decisions in supply chain management ensuring the sustainability of the Ayurveda industry.

Keywords: Ayurveda industry, Herbal ingredients, Price fluctuation, Sustainability

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Abstract ID - 210

Determination of the vegetative growth performance of selected cinnamon (*Cinnamomum verum* J. Presl) accessions at three locations of Sri Lanka

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Ceylon cinnamon is a multi-utility crop for the food, pharmaceutical and cosmetic industries. There are only two commercial cinnamon varieties named *Sri Gemunu* and *Sri Wijaya*. More commercial varieties are important for a wide scope of industries. Therefore, this study was conducted to determine the vegetative growth performance of selected cinnamon accessions at three locations of Sri Lanka from a core collection established at the Faculty of Agriculture, University of Ruhuna, Sri Lanka. The accessions with plant height above 0.75 m after 2 years of establishment and of distinct essential oil compositions, GB-13 (1.5 m), GK-17(1.5 m), KA-12(1.2 m), KE-5(1.4 m), PL-2 (1m), GB-17(0.86 m) and RL-15(2.1 m) were selected for vegetative propagation. The above accessions were established in the fields at the Faculty of Agriculture, University of Ruhuna in Matara district, a farmer field in Galle district and at sub research station, Nillambe in Kandy district with *Sri Gemunu* and *Sri Wijaya*. The accessions survived at three locations, after 12 months of plant establishment were, GK-17, RL-15, GB-13, PL-2 and KE-5, GB-13, KE-5, GB-17 and KA-12, and RL-15, GB-13 and KE-5 respectively. ANOVA followed by Duncan's multiple range test was performed to determine the effect of accession on plant height at each location at 0.05 level of significance. Plant height of all accessions in Faculty of Agriculture and Galle were not different from *Sri Gemunu* and *Sri Wijaya* as average plant heights were GK-17 (55±15 cm), RL-15(36±2.9 cm),GB-13 (69±69 cm), PL-2 (64±11.1cm), KE-5 (36 cm), *Sri Gemunu* (70±20 cm), and *Sri Wijaya* (53±5.9 cm), and GB-13 (43±8.5 cm),KE-5 (27±14 cm), GB17 (33 cm), KA-12 (23±11.5 cm), *Sri Gemunu* (70±30.5 cm), and *Sri Wijaya* (58±11.2 cm) respectively. In contrast, accession RL-15 produced the shortest plant height (50±16 cm) in Nillambe while accessions KE-5 (93±6.5 cm), and GB-13 (114±8.6cm) were not different from *Sri Gemunu* (82±2.9 cm) and *Sri Wijaya* (87±11.3 cm). Our results indicate the potential growth performance of the above accessions to expand the number of accessions in three districts, which must be confirmed through replicated multi-location trials.

Keywords: Cinnamon accessions, Plant height, Three districts

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Abstract ID - 212

In vitro shoot and root propagation of *Fragaria ananassa* for sustainable cultivation

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Strawberry (Fragaria ananassa) is one of the world's popular fruits, cherished for its sweet taste, nice smell, attractive form, and high nutritional and medicinal value. Among the diverse cultivars of strawberries, "Sweet Sensation" emerges as a notable variety, because of its special characteristics and remarkable yield potential. Vegetative propagation method using runner nodes is not sufficient to fulfill the high demand for commercial cultivation. Therefore, *in vitro* propagation techniques are very important alternative methods for sustainable cultivation. Optimizing proper method for shoot induction and root induction is important to produce large number of strawberry plants. Runner nodes were used as the explant for this experiment. After surface sterilization, Murashige and Skoog (MS) medium with various concentrations of plant growth regulators was used to identify proper shoot formation. Mainly BAP and NAA were used as the plant growth regulators for shoot induction. At shoot induction stage, results indicated that both MS media supplemented with 1.0 mg /L of NAA and 1.0 mg /L of BAP and MS medium supplemented with 2.0 mg /L of NAA and 1.0 mg /L of BAP showed highest shoot induction percentage (75%). MS medium supplemented with 2.0 mg /L of NAA and 1.0 mg /L of BAP showed highest shoot elongation percentage (87%). After shoot elongation, *in vitro* propagated, well grown F. ananassa shoots were taken out of from shoot induction medium and removed all traces of agar attach to the shoots. Shoots were transferred into the MS medium supplemented with different concentrations of IAA and IBA. The highest root development ratio was found in MS medium supplemented with 1.0 mg /L of IAA and 1.0 mg /L of IBA and it gave maximum roots per shoot.

Key words: *Fragaria ananassa, In vitro* propagation, Root induction, Shoot elongation, Shoot induction

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Abstract ID - 237

The potential of medicinal plant conservation with agroforestry in Sri Lanka to promote sustainable cultivation practices

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Sri Lanka, hosting over 1400 species of medicinal plants, faces significant threats from unsustainable harvesting and habitat degradation. Agroforestry, which integrates trees and shrubs into agricultural landscapes, offers a promising conservation strategy that promotes ecological and economic stability. This paper aims to evaluate the effectiveness of agroforestry in conserving medicinal plants in commercial plantation-dense areas of Sri Lanka and assess its impact on sustainable agricultural practices. The methodology involves a detailed review of existing literature on agroforestry practices, the conservation status of medicinal plants, and their utilization in traditional medicine within specific plantation-dense regions of Sri Lanka. This analysis utilizes data from over 50 peer-reviewed papers focusing on agroforestry and medicinal plant conservation, providing a robust synthesis of existing knowledge without primary data collection. Comparative analyses of agroforestry implementations in regions with similar ecological characteristics, which have shown an increase in biodiversity by up to 30% and a decrease in erosion rates by 45%, are also examined. Anticipated results indicate that agroforestry can significantly enhance the conservation of medicinal plant diversity, improve ecosystem services by increasing biodiversity by approximately 20%, and bolster agricultural resilience in plantation-dense areas. The paper addresses challenges such as selecting species that can lead to higher market values, adapting to market demands, and managing climate variability. It also considers the socioeconomic impacts of integrating traditional knowledge with modern agroforestry practices, potentially increasing local incomes. In conclusion, agroforestry emerges as a crucial and viable approach for the sustainable management of medicinal plants in Sri Lanka's plantation-dense areas, offering substantial benefits for biodiversity conservation and sustainable agricultural development. Advocating to adopt these practices is essential for advancing ecological preservation and achieving sustainable development goals in the region.

Keywords: Agroforestry systems, Medicinal plants conservation, Sustainable cultivation practices, Biodiversity, Climate resilience

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Abstract ID - 252

Assessment of rice farmers' knowledge, perception, and constraints towards rice-fish farming in Hambantota district, Sri Lanka

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Despite its numerous advantages, the adoption of integrated rice-fish farming (IRFF) in the context of Sri Lanka remains limited. Therefore, the present study aimed to investigate the perception and knowledge of rice farmers of the Hambantota District on IRFF. A total of 100 farmers were selected and they were interviewed by using a pretested questionnaire. Data were analyzed using descriptive statistics. Farmers' perception was measured using a five-point Likert scale (from 1-strongly disagree to 5-strongly agree), and the mean-individual score was taken as a measure of their perception. The mean score (MS) ≥2.5 was considered as a positive perception while the MS < 2.5 was a negative perception. The respondents' knowledge was assessed through a list of 20 statements, and their responses were scored as either 1 (correct) or 0 (incorrect). The three levels of knowledge were defined as high (MS ≥15), moderate (MS 10<15) and low (MS <10). The constraints were measured using a 3-point Likert type scale (1 – not a constraint, 2 – severe, 3 – very severe). The MS for each constraint was calculated, and the MS ≥2.0 was regarded as a severe constraint and MS < 2.0 were regarded as less severe constraint. Majority of rice farmers (59%) were older than 40 years and 99% of them are males. Only 43% of farmers were aware of IRFF, while 47% were not. On average, respondents had a positive perception on IRFF, with a mean score of 2.6, although their knowledge on IRFF was low. The study identified lack of technical knowledge (MS 2.16) as a major barrier to implementing IRFF. The respondents' age and paddy production level were found to positively impact their preference for practicing IRFF. In conclusion, rice farmers of Hambanthota District have a low level of knowledge on IRFF; however, their perception is very positive on this regard. Therefore, the present study highlights the importance of creating awareness about IRFF among rice farmers.

Keywords: Adoption barriers, Hambantota District, Integrated rice-fish farming (IRFF),

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Abstract ID - 258

Healing and therapeutic landscape designing using medicinal plants- Empirical study of "barberyn waves" ayurveda resort-weligama

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Incorporating medicinal plants into landscapes and gardens offers various benefits, including unique texture, aesthetics, ecology, and health. The concept of "healing garden" has been developed to promote human health both physically and mentally. Humans have five sensory organs, which feel sensations of sight, smell sound, taste and touch and leads mindfulness. The healing garden should be designed to create pleasant sensation as much as possible through five sensory organs. The study took place in *Weligama* town, on Sri Lanka's southern coast. Challenges included strong winds and intense sunlight. The 0.4 ha garden site had compacted, infertile soil. Trenches were filled with coir, sand, and cow dung for soil improvement. The garden featured a walking path and seating area. The plant selection for the hedges of the walking paths was purposely selected to stimulate sensory organs. The hedges consisted of *Indigofera Tinctoria* (Nil Awariya)-for greenery, *Blumea salvafolia* (Le Waralla) for pink leaves, *Erythroxylum acuminatum* (Bata Kirilla) for reddish tender leaves and reddish fruits as an attraction of birds, *Chalcas cammuneng* (Atteriya) for strong aroma, *Osbeckia octranda* (Heen Bovitiya) for pink color flowers and *Hibiscus sinensis* (Pokuru Wada) for reddish flowers. Arches were made crossing the path using *Jasminum congestum* (Jasmine) to make a pleasant aroma. The seating area was designed with curvy plots of *Barleria echinate* (Kaha katu karadu)- yellow flowers, *Plumbagidium roseum* (Rath Nithul)-red flowers, *Clitorea ternatea* – Nil Katarolu for bluish flowers and *Tagetes erecta* (Marigold) – orange color flowers. All the seven colors of spectrum were included using vegetation. Pleasant aroma and pleasant sound of birds were incorporated using plants. To ensure smooth touch, walking path was designed with pebbles, sand and lawn done by grass and *Desmodium bullamense* (Udupiyaliya). Except for the taste all other senses were stimulated at the garden.

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