

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/384155007>

# Development and Standardization of Ayurveda Mentioned Shadanga Panaya as a User-friendly Modern Pharmaceutical Oral Rehydration Powder

Conference Paper · July 2024

CITATIONS

0

READS

66

3 authors:



**Dilhan Jayathilake**

University of Colombo

18 PUBLICATIONS 0 CITATIONS

SEE PROFILE



**Kaumadi Karunagoda**

University of Colombo

65 PUBLICATIONS 82 CITATIONS

SEE PROFILE



**Jeevani Maheshika Dahanayake**

University of Colombo

46 PUBLICATIONS 70 CITATIONS

SEE PROFILE

# Proc. **TASME** CONFERENCE



The Proceedings of the Technological Advances in Science, Medicine, and Engineering  
**The 28<sup>th</sup> Annual TASME International Zoom/In-Person Hybrid Conference**  
The University of Toronto, Scarborough, Canada  
6-7 July 2024  
In partnership with:

**MDPI** | MDPI Technologies Journal

## TASME2024 Organizers

### **TASME2024 Lead Chair**

Nades Palaniyar *Ph.D.*

### **TASME2024 Co-Chair**

Bala Maheswaran *Ph.D.*

### **TASME2024 in-person Conference co-ordinator**

Nirusha Thavarajah *Ph.D.*

### **TASME2024 Web and CMT developer and Admin**

Nanda Ganesan *Ph.D.*

### **TASME conference Website**

Bala Maheswaran *Ph.D.*

### **TASME2024 Organizing Committee members and subject chairs**

Anshiya Ramanitharan *MD.*

Janani Sivarajah *Ph.D.*

Kandiah Ramanitharan *Ph.D.*

Nirojini Sivachandran *MD, Ph.D., FRCSC.*

Nithi Selliah *Ph.D.*

Phani Radhakrishnan *Ph.D.*

Pratheepa Jeganathan *Ph.D.*

Premkumari Kumarathasan *Ph.D.*

Ramanathan Sri Ranjan *Ph.D.*

Sam Thiagalingam *Ph.D.*

Siva Sivathayalan *Ph.D.*

Theva Thevuthasan *Ph.D.*

Vaithi Shutthanandan *Ph.D.*

Vipul Cumaraswamy *Ph.D.*

Xavier Fernando *Ph.D.*

### **TASME2024 OC Advisory Members**

Kasivisvanathan Chelvakumar *PhD, MBA*

Shyamala Maheswaran *Ph.D.*

Jeevendra Martyn *M.D.*

Vishnu Suppiramianiam *B.V.Sc., D.V.M., M.S., Ph.D*

## **Outreach Leads**

Nades Palaniyar *Ph.D. (All aspects)*

Nanda Ganesan *Ph.D. (ENG/TECH)*

Nirusha Thavarajah *Ph.D.* and Phani Radhakrishnan *Ph.D. (SCI)*

Xavier Fernando *Ph.D.(ENG)*

## **TASME2024 Editorial Board (Proceedings and Special Issue)**

Siva Sivathayalan *Ph.D.*

Editor in Chief

Vaithiyalingam Shutthanandan *Ph.D.*

Editorial board member [Proceedings]

Pratheepa Jeganathan *Ph.D.*

Editorial board member [Technologies Special Issue (SCI/Math)]

Nades Palaniyar *Ph.D.*

Editorial board member [Technologies Special Issue (LifeSci/MED)]

Xavier Fernando *Ph.D.*

Editorial board member [Technologies Special Issue (ENG/TECH)]

Nirusha Thavarajah *Ph.D.*

Editorial Creative Designer

Vijayakanthan Ganesalingam *MSc.*

Editorial Assistant

Vaishali Ravi *MSc.*

Editorial Assistant

## **Conference Award Committee**

Janani Sivarajah *Ph.D.*

Nirusha Thavarajah *Ph.D.*

Pratheepa Jeganathan *Ph.D.*

Ramanathan Sri Ranjan *Ph.D.*

## Table of Contents

Paper ID	Title	Page No
026	Women participation in agricultural water management at minor irrigation command area of the Batticaloa district, Sri Lanka . . . . .	11
035	Uncovering Racial and Gender Biases in an AI-driven Hiring Platforms: Results from an Industry-Partnership in the University Classroom . . . . .	12
047	Engaging Chemistry and Management Disciplines to Address UN Sustainability Development Goals for Zero Hunger, Good Health, and Wellbeing . . . . .	13
050	Surgeon perspectives on the approach to breast surgical oncology in Northern Province, Sri Lanka: A qualitative analysis (SPABSO) . . . . .	15
053	Automated Recognition of Social Engineering Patterns . . . . .	16
055	An UWB Indoor Wireless Positioning Systems for Large Number of Objects . . . . .	17
056	Enzymatic Mitigation of Nitroaromatic Compound Toxicity: Insights from <i>Cupriavidus</i> . . . . .	18
057	Assessment of Liver Toxicity Induced by Polyethylene Microplastics (PE-MPs) in In-vivo model: Implications for Human Health . . . . .	19
058	Lifecycle Assessment of Electrical Vehicles: A systematic review . . . . .	20
059	Opportunities and Challenges for Circular Economic Implementation in Sri Lankan Automotive Industries . . . . .	21
063	Serotype distribution and <i>in-vitro</i> biofilm formation of <i>Streptococcus pneumoniae</i> among healthy children in Colombo, Sri Lanka . . . . .	22
065	The Relationship Between Green Supply Chain Management Practices and Sustainability Performance in Retail Industry of Sri Lanka . . . . .	23
066	Interactions between Group B streptococcus and the vaginal microbiome in pregnant women . . . . .	24
068	A Mini Review on the Synthesis of Nano-Biopesticides for Crop Protection in Sri Lanka and Ghana . . . . .	25
069	Do we need to understand the specific challenges related to omni-channel marketing technology among SMEs in Sri Lanka? . . . . .	26
071	Do arts and crafts entrepreneurs in Sri Lanka have misconceptions about omni-channel marketing technology? A case study approach . . . . .	28
072	Mechanisms to reuse the battery technology in electric vehicles . . . . .	30
073	Are e-learning challenges adequately addressed in Sri Lanka's rural communities? A qualitative study . . . . .	32
074	Bridging the socioeconomic gap in the blended learning system in Higher Education in Sri Lanka . . . . .	34
075	Deep Characterization of Immune cells with Spectral Flow cytometry . . . . .	36
077	Emerging Methods and Prevention of Diabetic Foot Ulceration: A Review . . . . .	37
078	Digital Human Resource Development in Sri Lanka: Effective Reskilling and Upskilling Strategies . . . . .	38
079	Developing Personal Brands through Social Media Platforms: A case of university academics in Sri Lanka . . . . .	40
080	Redefining Recruitment: The Power of AI Transparency for Trust and Fairness . . . . .	41
081	Novel Ferret Model of Blast-induced Spinal Cord Injury . . . . .	42
082	Enhancing Security in IoT Healthcare: Utilizing Cryptography for Glucose Monitoring Systems . . . . .	43
086	Biochar ameliorates the effects of Arsenic stress on lettuce growth in a hydroponic system . . . . .	44
087	Efficient Dual-Axis Solar Tracking Utilizing Internet of Things . . . . .	45
091	Balancing Act Workshop: Mentorship Essentials for Success on Academia's Three-Legged Stool . . . . .	46
092	Assessing Biochar's Impact on Greenhouse Gas Emissions in Urban Soil: A Study of Street Tree Planting Sites in Quebec City . . . . .	47

147	Relative Effectiveness of Electromagnetic Radiation on Tritrophic Interaction on Yardlong Bean ( <i>Vigna Unguiculata</i> ), Variety Bushita . . . . .	83
148	The Impact of Video Mediated Teaching For Bachelor of Education Honours In Special Needs Education Degree Programme, The Open University of Sri Lanka . . . . .	84
149	Impact of Storage Time and Temperature on the Stability of Extracted SARS-CoV-2 RNA for qRT-PCR Analysis . . . . .	85
149	Impact of Storage Time and Temperature on the Stability of Extracted SARS-CoV-2 RNA for qRT-PCR Analysis . . . . .	86
152	Strong Antibonding I ( <i>p</i> )-Cu ( <i>d</i> ) States Lead to Intrinsically Low Thermal Conductivity in CuBiI <sub>4</sub>	88
153	Synthesis of “Sugar cube” shaped zeolite A type from thermally treated kaolin and their CO <sub>2</sub> adsorption performance . . . . .	89
154	The Natural Cure: Organic Capsules for Cardiovascular and Cancer Wellness . . . . .	90
155	New insight into antioxidant properties of Rosemary: DFT analysis of Carnosic Acid and its metabolites . . . . .	91
156	Bringing Teamwork and Experiential Learning to Large First Year Classes: The University of Toronto Approach . . . . .	92
165	Anthelmintic Activity of Extracts of <i>Aristolochia bracteolata</i> Lam. Leaves: An In Vitro Study . . .	93
166	Eco Friendly Sanitary Pad from Aquatic Weed . . . . .	94
167	Involvement of Artificial Intelligence in Traffic Controlling Systems: A Review . . . . .	95
168	Synergistic Fusion of Imaging and Clinical Data for Precise Skin Cancer Classification: A Novel Multimodal Analysis . . . . .	96
169	Deep learning adapted portfolio formation framework for cryptocurrency investments . . . . .	97
172	Experimental and Numerical Investigation of the Effect of Recycled USP on Shear Resistance at the Sleeper-Ballast Interface . . . . .	98
175	AI in Recruitment . . . . .	99
176	Using non-GHG satellite data for detecting methane point sources in urban environments . . . .	100
178	Review on Spectroscopic Investigations of Cerium-Doped Phosphors: Persistent Luminescence	101
179	Long acting injectable delivery system of capsaicin-loaded PLGA-based in-situ forming implant for treating obesity . . . . .	102
181	A Qualitative study on Caregiver Stress Amongst Immigrant Tamil Caregivers of Patients with Dementia(PWD) . . . . .	104
182	Undrained simple shear response of stratified layers of clay and sand . . . . .	105
184	Telling, Transforming, and Crafting: How Career-relevant Problem Based Learning Activities Can Empower Management Students to Write . . . . .	106
185	Federated Deep Reinforcement Learning-Based Resource Allocation in Vehicular Networks . . .	108
187	Full-Scale Compression Field Load Test Performed on Auger Cast in Placed (ACIP) Pile in Sand for Bridge Support and the Performances Predicted Using Vipulanandan Models . . . . .	109
188	Behavior of Smart Foam Cement Characterized Using Artificial Neural Network and Vipulanandan Models . . . . .	110
189	Entrepreneurial behavior of vegetable farmers in Badulla, Sri Lanka . . . . .	111
190	Influence of Particle Size Distribution on The Shear Behavior of Ballast . . . . .	112
191	Classification of User Reviews of E-Learning Platforms Using Data Mining Techniques . . . . .	114
192	Invasive Aspergillosis - a deadly fungal infection in an infant following HSCT . . . . .	115
194	Antifungal susceptibility pattern of <i>Candida</i> blood culture isolates received at the Department of Mycology, Medical Research Institute, Sri Lanka . . . . .	116
196	Study to determine vancomycin susceptibility by different test methods in <i>clinical Staphylococcus aureus</i> isolates from the National Hospital of Sri Lanka . . . . .	118

197	Sustainable utilization of rubber glove manufacturing sludge and wood ash for compressed stabilized earth blocks in construction . . . . .	119
198	Preparation and characterization of multimetallic nanohybrids reinforced broad spectrum antibacterial nanofibrous membrane with a synergistic self-sterilizing activity . . . . .	120
199	Synthesis, Spectral characterization and Computational studies of organic single crystals for nonlinear optical applications . . . . .	121
200	Crab shell waste derived chitosan as natural gel electrolyte matrix in Dye-Sensitized Solar Cells	122
201	Effectiveness of Pun podi on wound healing – Experimental animal study . . . . .	123
202	Assessment of species distribution, antifungal susceptibility pattern and associated factors of <i>Candida</i> blood stream infections in Sri Lanka from 2018 to 2022. . . . .	124
203	Prevalence and predictors of MRSA colonization among healthcare workers in surgical and special units in a tertiary care hospital in the Western Province of Sri Lanka . . . . .	126
204	Seroprevalence of Hepatitis B Surface Antibody and associated factors among the Healthcare workers of the Western Province in Sri Lanka . . . . .	128
205	Can microalgae be grown in primary effluent of municipal wastewater in the presence of bacteria?	129
206	Influence of open-air post-annealing on Al-Doped ZnO thin films prepared by non-oxidizing RF magnetron sputtering . . . . .	130
207	Assessment of Forest Cover Changes in Wilpattu Forest Complex From 1988 to 2019 . . . . .	131
209	The Impact of Body Mass Index on Patient Dose Indicators and Exposure Parameters in Projection Radiography Examinations in Sri Lanka . . . . .	132
211	Assessment of Avifaunal Composition and its Diversity at Mangrove Wetland, Sathurukondan, Batticaloa, Sri Lanka: Implication For Ecotourism Promotion . . . . .	134
212	Autonomous Vehicle Technologies in Monitoring Aqua Ecosystems-A Review . . . . .	135
213	Development Of A Smart Shoe Series Using Kansei Engineering . . . . .	136
214	Managing Natural Organic Matter in Drinking Water Sources under Changing Climate . . . . .	137
216	Antioxidants and antioxidant properties of whole grains of selected wild <i>Oryza</i> species in Sri Lanka . . . . .	138
217	Superiority of WiFi-enhanced SLAM Compared to Conventional SLAM . . . . .	139
218	Enhancing the Performance in Online Gaming Environments using Cloud Computing . . . . .	141
219	Eco-Friendly Radiation Shielding Materials for Diagnostics Medical Applications: Exploring Sri Lankan Minerals . . . . .	142
220	The role of vegetation composition, structure, and heterogeneity in supporting avian communities in exotic plantations: implications for sustainable forest management . . . . .	143
221	<i>Insilico</i> and Synthetic study on fused Benzopyran with sulphonyl urea/biguanide derivative as oral hypoglycaemic agents . . . . .	144
222	Dietary starch utilization level of tinfoil barb ( <i>Barbonymus schwanenfeldii</i> , Bleeker 1853) fry . .	145
225	Formulation of Facility Reference Levels for Routine Diagnostic Head Computed Tomography Examinations at Tertiary Care Hospital in Central Province of Sri Lanka. . . . .	146
227	Characterization of starch-based adhesive from ‘ <i>Kirikawadi</i> ’ variety of <i>Manihot esculenta</i> Crantz .	147
228	Feasibility Analysis of Used Cooking Oil as an Alternative Fuel Source and Designing of a Hybrid Cooking Stove . . . . .	148
229	Computational Design Synthesis Characterization and Evaluation of Antidepressant activity in Azaphenothiazine Analogues . . . . .	149
230	Overcoming Biofilm Mediated Resistance through Phage-Antibiotic Synergy . . . . .	150
231	Combining diverse natural fibers to create eco-friendly sound-absorbing materials and researching the effects of thickness and compression on the tea waste sound absorber . . . . .	151

232	Therapeutic Characterization of Bacteriophages against Multidrug-resistant <i>Acinetobacter baumannii</i> . . . . .	152
233	Isolation and Characterization of Bacteriophages against Third Generation Cephalosporin Resistant <i>E. coli</i> . . . . .	153
234	The Influence of Thickness and Compression on the Sound Absorbing Ability of Eco-Friendly Tea Waste Sound Absorber . . . . .	154
235	Addressing Inter-Tumor Heterogeneity in Gastric Cancer: Deep Learning based Classification of Phenotypes from H&E Stained Images . . . . .	155
236	Optimization of cultivation practices using <i>Mimosa pigra</i> based biofertilizer to maximize Vitamin C content in MI-2 ( <i>Capsicum annum</i> ) chili pods . . . . .	156
237	Design A Low Cost Automated Incubators for House Hold Farmers . . . . .	157
238	Phage antibiotic combinations to manage MRSA infections . . . . .	158
239	. . . . .	159
240	Novel Deep Learning Framework for Mapping Permafrost over the Northwestern Himalayas . . . . .	160
241	Impact of Work Alienation on Quiet Quitting of Front-Line Workers in Textile Industry in Northwestern Province with the Mediating Role of Emotional Exhaustion . . . . .	161
242	Retrofitting Existing Structures Using Micro Concrete . . . . .	162
243	Evaluating Road Accident Dynamics to Formulate Effective Road Safety Strategies: A Case Study of the Northwestern Province in Sri Lanka . . . . .	163
245	Asymptotic Dynamics of a Larch Budmoth Interaction with Harvesting and Thinning Operation . . . . .	164
246	TCGA-Based Prediction of Esophageal Cancer Patient Survival: A Diagnostic Approach . . . . .	165
247	Analysis of Road Accidents High-Risk Locations in Kelaniya Police Division . . . . .	166
248	Fabricating Perovskite Solar cells by primarily utilizing Coconut shell-based Carbon powder . . . . .	167
249	Time-aligned Latent Dirichlet Allocation for Longitudinal Microbiome Data . . . . .	168
251	Assessing challenges and facilitators to the adoption of digital payment gateway systems in Sri Lanka: a comparative analysis with global trends . . . . .	169
252	Advancements in Speech Representation: From Feature Engineering to Self-Supervised Learning . . . . .	170
253	Brain-Controlled Wheelchair Navigation Using Visual Perception in Simulated Indoor Environments . . . . .	171
254	The Variance Between Gender and Aggression Among Undergraduates in Colombo District . . . . .	172
255	Enhancing Alzheimer’s Diagnosis: Deep Learning with Self-Attention for 3D MRI Classification . . . . .	173
256	An Innovative Method for Learning and Testing of Affixation in English . . . . .	174
257	Assessing the Impact of Microplastics on Human Health . . . . .	175
258	The Impact of Inflation on Nutrition and Education Among Ontario’s Youth . . . . .	176
259	Safety and efficacy of ‘Triphala’ an ayurvedic natural anti-oxidant preparation, in management of diabetes mellitus: An evidence based study . . . . .	177
260	SPA4 peptide for calming the storm . . . . .	178
261	Nexus between Information and Communication Technology utilization and agricultural value chain in Sri Lanka . . . . .	179
262	The Potential of Soil Microalgae On Soil Carbon Sequestration And Contribution To The Global Carbon Cycle . . . . .	180
264	SGLT2 Inhibitor Therapy for Oxidative Stress-Induced Mitochondrial Dysfunctions . . . . .	181
265	NLRP10 Deletion Enhances Host Defense During Gram Positive Bacteria-induced Pneumonia . . . . .	183
267	A Novel Mitophagy Assay For Documenting Mitophagy Response Defect in Burn Injury and its Potential Use for Translational Studies . . . . .	184

269	Genomic Exploration of Indigenous Populations: A Review Unveiling Insights, Challenges, and Ethical Considerations . . . . .	185
271	Hidden Women . . . . .	187
272	Chronic Moderate Exercise Promotes Trained Immunity in Bone Marrow Macrophages . . . . .	188
273	A Collaboration between Chemistry and Management Students to Promote the Sustainable Farming of Pomegranate in India . . . . .	189
274	Computing Binary Operations with Photopolymerization-based Waveguide Formation . . . . .	190
275	Developing a Deep-learning tool to diagnose Alzheimer’s Disease using EEG Signals . . . . .	191
276	Effects of Skincare on Preteens and Teens Due to Influence of Makeup on Social Media . . . . .	192
277	Analyzing the spatiotemporal performance of CHIRPS data for Sri Lanka for deeper analysis using GIS . . . . .	193
278	Rail Track Surface Defects Detection Using CNN . . . . .	194
279	Barriers to Mental Health Services for Adolescents in Toronto High Schools . . . . .	195
282	Efficient removal of chromium ions from aqueous solutions using ZnO-Activated carbon nanocomposites derived from palmyrah nut shells . . . . .	196
283	Indigenization of Environmental Science courses: Challenges and Insights from a Pedagogical Perspective . . . . .	197
284	Establishing Psae-2 Lung Infection Model Within Evlp Platform . . . . .	198
285	Assessing the Impact of Social Media Use on Mental Health in Young Teens Girls . . . . .	199
286	Nutraceutical and Neuroprotective Pharmacodynamics of Flavones . . . . .	200
288	Reviving Neurons: The Promise of 7,8-Dihydroxy Flavone in Parkinson’s Disease Therapy . . . . .	201
289	Case report of Herpes Zoster infection post COVID-19 mRNA vaccination in an 18-year-old immunocompetent South Asian male patient . . . . .	202
290	Designing and Hosting an Academic Conference Platform . . . . .	203
291	Disease mapping and GIS applications in public health . . . . .	204
292	Science but Make It Social – A Workshop on Disseminating Research . . . . .	205
293	Evaluation of the wound healing activity of Hyoscyamus nigar seed powder on the wistar albino rats . . . . .	206
294	Comparative Analysis of Geometric and Fractional Brownian Motion Models in Forecasting Stock Prices . . . . .	207
295	A Study of Growth of a Human Brain Tumour Using Reaction-Diffusion Equation with Finite Element Method . . . . .	208
296	Design and Fabrication of Smart Incubator System for Plants . . . . .	209
298	Photocatalytic hydrogen production through water splitting on NiCo <sub>2</sub> S <sub>4</sub> /TiO <sub>2</sub> nanocomposite over extended solar irradiation . . . . .	210
300	Shredded Rubber for Partial Replacement of Ballast in Rail Track Applications . . . . .	211
301	Bi <sub>2</sub> O <sub>2</sub> CO <sub>3</sub> @Ni(OH) <sub>2</sub> nanostructures for high-performance supercapacitor applications . . . . .	212
302	Comprehensive characterization of Binder-free CaMoO <sub>4</sub> nanostructured anode electrodes for Li-ion battery applications . . . . .	213
304	The Impact Of Emotional Intelligence On Friendship Among Undergraduates In Colombo Universities . . . . .	214
305	Impact of Various Liquid Fertilizers on Growth And Yield Performance of Cauliflower . . . . .	215
306	Assessment of Spatial Variation In Harvested Rainwater Quality In Vavuniya South, Sri Lanka . . . . .	216
307	Enhanced Detection of Pox Virus Infections Using Deep Learning Models . . . . .	217
308	Quality and safety aspects of commercially available green tea in Sri Lankan market . . . . .	218

309	A Deep Learning Approach to Classify the Outcomes of Arterial Blood Gas Test to Detect the Respiratory Failure and Acid Base Imbalance . . . . .	219
310	Predicting Burnout Syndrome in Healthcare Professionals in Emergency Department Using Machine Learning and Deep Learning . . . . .	220
314	Preparation and Characterization of a Slow-Release Fertilizer Formulation Based on Sodium Alginate – Carboxymethylcellulose Hydrogel . . . . .	221
316	TourismXplorer: Interactive Dashboard for Data-Driven Decision-Making in Sri Lanka’s Tourism Industry . . . . .	222
317	Harnessing AI for Innovation in the Jewelry Industry: A Case Study of L’Amour Pearls . . . . .	223
318	Artificial Neural Network (ANN) Model To Predict Pile Capacity . . . . .	224
320	The Impact of Emotional Intelligence on Aggression Among Undergraduates in Colombo District	226
321	Personalize Generative Pre-Trained Transformer (GPT) web application with Document Analysis Chatbot. . . . .	227
322	Stress Management Techniques for Professionals in STEM . . . . .	228
323	Plastic solid waste: A comprehensive review of recycling strategies and environmental impact .	229
324	Optimizing Music Playlists with KPCA for Gradient Boost Classifiers . . . . .	230
325	Microplastics and Rising Alzheimer’s Disease . . . . .	231
326	Insulin resistance and metabolic co variates among Type 2 Diabetes patients, attending diabetic centre, Teaching hospital Jaffna . . . . .	232
327	Assessment of Urinary Stone Chemical Compositions and Prevalence of Metabolic Disorders among Urolithiasis Patients in Northern Sri Lanka: A Prospective Study . . . . .	233
328	Chitin/clay bio-nanocomposites: preparation, characterization and applications . . . . .	234
329	Optimizing CatBoostClassifier for threat detection in Edge cloud environments . . . . .	235
330	Early Detection of Tea Leaf Diseases Using Deep Learning . . . . .	236
331	The Transformative Power of Practicing Yoga as a Leisure Pursuit for Elevating Human Wellbeing	237
332	Optimizing Recreational Experience and Environmental Management in Botanical Gardens through Horticultural Enhancements: A Case Study Approach . . . . .	238
333	Preparation of polystyrene/ clay nanocomposites for various applications . . . . .	240
334	Reproductive biology of female <i>Metapenaeus moybei</i> in Jaffna lagoon, Sri Lanka . . . . .	241
335	Comprehensive Road Accident Severity Prediction Using Deep Learning and Contributing Factors	242
336	Enhancing Power Conversion Efficiency of Dye-Sensitized Solar Cells through Ag/N Co-doping of Titania Photoelectrode . . . . .	243
338	Formulation of Herbal Powder, Dried Fruit Slices And Snacks Using Leaves And Fruits of Underutilized Medicinal Plant . . . . .	244
339	Age and Gender Recognition using Transfer Learning Approaches . . . . .	245
340	Detection of Fruit Quality Using Deep Learning Techniques . . . . .	246
341	Characterization of Composite Cu-Zn-Mg Spinel Ferrite Nanoparticles for Structural and Electrochemical Properties . . . . .	247
342	Effect of 4f rare-earth element on tuning the Fe-based magnetism in chiral chalcogenides: $Y_6FeSi_2S_{14}$ and $Tb_6FeSi_2S_{14}$ . . . . .	248
343	Impact of Covid-19 on Stock Market Predictability: A Comparative Analysis of Colombo, Indian, and New York Stock Exchanges using Time Series Models . . . . .	249
344	A Case Study on the Efficacy of Herbal Medicine and Dietary Interventions in the Alternative Management of Gallstone Disease . . . . .	250
345	Identification of Penaeid shrimp from Off Gurunagar Coast, Northern Sri Lanka through DNA barcoding . . . . .	251

# Development and Standardization of Ayurveda Mentioned Shadanga Panaya as a User-friendly Modern Pharmaceutical Oral Rehydration Powder

R.M.D. Jayathilake<sup>1,\*</sup>, K.P.K.R. Karunagoda<sup>2</sup>, and J.M. Dahanayake<sup>3</sup>

<sup>1</sup> Faculty of Indigenous Medicine, University of Colombo, Sri Lanka

<sup>2</sup> Department of Ayurveda Surgery, ENT, Ophthalmology and Gynecology, Obstetrics and Pediatrics, Faculty of Indigenous Medicine, University of Colombo, Sri Lanka

<sup>3</sup> Ayurveda Pharmacology and Pharmaceutics, Faculty of Indigenous Medicine, University of Colombo, Sri Lanka

\* Correspondence: Dilhanjayathilake95@gmail.com

**Abstract:** Shadanga Panaya is a compound Ayurvedic formulation that contains six ingredients: *Cyperus rotundus* L, *Fumaria parviflora* Lam, *Vetiveria zizanioides* L, *Santalum album* L, *Pavonia odorata* Willd, and *Zingiber officinale* Roscoe. As Shadanga Panaya is a decoction (Kashaya) mentioned in Ayurveda, Ayurvedic physicians have been using it to treat fever with thirst, Fever, Remove toxic substances from the blood (Raktapitta), Alleviate Pitta through sweating and address the burning sensation of the body and urination process, Diarrhea and vomiting like dehydration conditions. Symptoms of COVID-19 have also been treated with Shadanga Panaya. Standardization and quality parameters for Shadanga Panaya have not been reported.

The aim of this research study was the development and standardization of the Ayurvedic formulation Shadanga Panaya into a user-friendly modern pharmaceutical oral rehydration powder. The study included a literature review on the method of preparation, Observation of the morphology of raw materials used, Preparation of Shadanga Panaya according to standard classical procedures and development of Shadanga Panaya using a spray dryer process without and with adding a filler (*Maltodextrin*) for a user-friendly dosage form. Comparisons were made regarding solubility, physicochemical analysis (Including pH, Refractive index and Specific gravity) and organoleptic properties (Color, odor, taste, and appearance) of the developed Shadanga Panaya according to World Health Organization (WHO) - 2012 guidelines. Standardization was performed to determine total ash content, acid-insoluble ash, water-soluble ash, and moisture content. The design and comparison of TLC fingerprinting, HPTLC, Analysis of electrolytes, Heavy metals and microbial contamination were conducted on the developed Shadanga Panaya.

The spray-dried product was developed by adding Maltodextrin without any other excipients. The organoleptic properties met the standards of Ayurvedic preparation. Preliminary phytochemical screening revealed the presence of flavonoids, carbohydrates, saponins, phenols, and glycosides. Due to the importance of quality assessment and standardization, physicochemical evaluation was performed to set the standard. TLC fingerprinting showed separation in the aqueous extract of Shadanga Panaya, using a solvent system of Chloroform: Acetone: Glacial acid (15.2:3:1). This system was found to be optimal for chromatography. A comparative TLC study showed identical components between the developed Shadanga Panaya powder and its ingredients. Thus, TLC can be considered an essential tool for quality control measures of Shadanga Panaya, Helping to establish its identity, Degree of purity and quality as quality assurance standards. This will increase the acceptance of Shadanga Panaya without compromising human health in the present scenario. The pH was 6.70, The refractive index was 0.1 and the specific gravity was 1.0085.

The electrolyte composition and pH of the product did not meet the composition of Oral Rehydration Solution according to the WHO that identified and will be corrected by further studies. The research team believes that with the new approach, standardization and evaluation of standard operation procedures will be able to develop Shadanga Panaya as a user-friendly Oral Rehydration Powder according to WHO guidelines to emphasize the potential for innovation and enhanced treatment outcomes in future healthcare.

**Keywords:** Herbal powder Standardization parameters, Oral rehydration therapy, Product development technology, Shadanga Panaya, TLC, WHO guidelines

**Citation:** R.M.D. Jayathilake, K.P.K.R karunagoda , & J.M Dahanayake, 2024. Development and Standardization of Ayurveda Mentioned Shadanga Panaya as a User-friendly Modern Pharmaceutical Oral Rehydration Powder, Paper #116, Abstract in the the Proceedings of the 28<sup>th</sup> Annual Technological Advances in Science, Medicine, and Engineering (TASME 2024) Conference (Hybrid Conference). Toronto, Canada. July 6-7.