

URSTech 2025

“Celebrating Innovation, Embracing the Future”

2nd Undergraduate Research Symposium of Technology



03rd April 2025

Faculty of Technology

Sabaragamuwa University of Sri Lanka

URSTech 2025

“Celebrating Innovation, Embracing the Future”

2nd Undergraduate Research Symposium of Technology 2025

03rd April 2025

at Faculty of Technology Auditorium,

Sabaragamuwa University of Sri Lanka, Belihuloya

Symposium Programme at a Glance

08:30 am – 09:30 am	Registration of Participants
09.30 am - 10.30 am	Plenary Talk
10.30 am – 11.00 am	Morning Refreshment
11.00 am – 01:00 pm	Technical Sessions I
01:00 pm- 02:00 pm	Lunch
02:00 pm - 04.00 pm	Technical Session II

Conference Tracks

Advances in Emerging Sciences

Applied Biotechnology and Microbiology

Bioenergy and Biofuel Generation Technology

Drug Discovery and Development

Mechanical Engineering Technology

Electrical and Electronic Engineering Technology

TECHNICAL

SESSION I

Technical Session I - Bioenergy and Biofuel Generation Technology - Oral Presentations

Date : 03.04.2025

Time : 11:00 am – 01:00 pm

Venue : Lecture Hall 01

Session Chair		Mr. Isuru Hettiarachchi
Panel Member		Mr. Chandimal Ranathunga
Session Coordinator		Ms. P.M. Abesundara
Time	Paper ID	Paper Title & Authors
11:00 am – 11:15 am	03	Selection of High Protein and High Lipid Substrate for Maximizing Biogas and Methane Yield while Minimizing Metabolic Inhibition of Bio Components. <i>W.A.H. V Perera, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
11:15 am – 11:30 am	14	Determining the Potential of Biogas for conversation to Liquid Biofuel Using Fischer Tropsch Technology within a Sustainable Manufacturing Framework and a Zero-Waste Concept. <i>W.A.H. V Perera, W.S.D Rathnasiri, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
11:30 am – 11:45 am	17	Evaluating the Production of Minor Byproducts and Their Impact on Biogas Purification from Slaughterhouse Waste. <i>W.A.H. V Perera, K. V Nethsara, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
11:45 am– 12:00 noon	23	Produced Densified Biomass Fuel Utilizing Kernel Cake Decanter Cake & Pine Resin. <i>M. M. M. S. Wakkumbura, E. R. J. M. D. D. P. Wijesekara, P.M. Abesundara.</i>
12:00 noon– 12:15 pm	24	A Sustainable Waste Management Solution for Decanter Solid via Renewable Biogas Production Through Anaerobic Digestion and Simulation. <i>W.A.D.L.Didulani, P.M. Abesundara, E.R.J.M.D.D.P. Wijesekara.</i>
12:15 pm– 12:30 pm	49	Wastewater Released by Coconut Oil Manufacturing Company Converted into Useful Biofuels. <i>W.A.S.R.W. Arachchi, D.K.A. Induranga, and A.M.P.C.Amarasinghe.</i>
12:30 pm– 12:45 pm	78	Optimization of Free Fatty Acid Reduction in Sludge Palm Oil Through Esterification for Enhanced Biodiesel Production. <i>N.A.I. Chamara, S.H.L.N. Kularathne and E.P.R.H.H.W. Nilmalgoda.</i>
12:45 pm– 01:00 pm	79	Utilizing <i>Arachis pintoi</i> Biomass for Clean Energy: A Study on Briquette Production. <i>N.M.D.N. Gunathilaka, S.H.L.N. Kularathne and E.P.R.H.H.W. Nilmalgoda.</i>

Technical Session I - Applied Biotechnology and Microbiology - Oral Presentations

Date : 03.04.2025

Time : 11:00 am – 12:30 pm

Venue : Lecture Hall 02

Session Chair		Prof. E. P. N. Udayakumara
Panel Member 01		Mr. Buddhika Dharmasena
Session Coordinator		Mrs. Wathsala Gunasinghe
Time	Paper ID	Paper Title & Authors
11:00 am – 11:15 am	13	Dilution of Toxicity from Chemical Components in Substrate Composition to Enhance Microbial activity in Anaerobic Digestion of Animal Wastes. <i>W.A.H.V Perera, H.M.K.M. Herath , K.S. Hosan, R.J.M.D.D.P. Wijesekara, H.V.V. Priyadarshana, K.R. Koswattage.</i>
11:15 am – 11:30 am	59	Identification of GMOs in imported seed samples of maize to Sri Lanka. <i>A.A.K.S. Adikari, W.G.B.P. Dharmasena, M.H.A.D.Subashini.</i>
11:30 am – 11:45 am	66	Utilization of Banana Pseudo stem Extract as a Cost-Effective Supplement to MS Medium for In Vitro Propagation of Sour Banana (<i>Musa acuminata</i>). <i>I.N. Tharanga, M.D.K.M. Gunasena, H. Rohanadheera.</i>
11:45 am – 12:00 noon	67	Development of an Efficient Micropropagation Protocol for <i>Exacum macranthum</i> (Binara): Conservation and Commercial Potential. <i>W.Y. Samarawickrama, A.N. Nanayakkara, M.D.K.M. Gunasena.</i>
12:00 noon – 12:15 pm	68	Optimized In Vitro Propagation Protocol for <i>Cryptocoryne undulata</i> : A Strategy for Conservation and Mass Cultivation. <i>A.M.D.L Dharmasiri, M.M.L.I.W, Bandara, M.D.K.M Gunasena.</i>
12:15 pm – 12:30 pm	72	Comparative Nutritional Assessment of Five Newly Improved Tomato Lines and Selected Two Tomato Varieties Released by the Department of Agriculture. <i>D.M.H.K. Dissanayaka, G.G.S.U. Gamage, S.S. Millavithanachchi, M.D.K.M. Gunasena, P.K.G.S.S. Bandara.</i>

Technical Session I - Drug Discovery and Development - Oral Presentations

Date : 03.04.2025

Time : 11:00 am – 01:00 pm

Venue : Lecture Hall 03

Session Chair		Prof. Sakeena Hameem
Panel Member		Dr. Dasuni Wasana
Session Coordinator		Ms. H. S. R. Thathsarani
Time	Paper ID	Paper Title & Authors
11:00 am – 11:15 am	41	Formulation Development, And In-Vitro Assessment of Diclofenac Sodium Loaded Nanosponge Topical Preparation. <i>K.N.Nimasha, K.A.G.H.Kuruppu, K.R.Koswattage.</i>
11:15 am – 11:30 am	42	Formulation and Evaluation of a Sunscreen Lotion Using Koora Thamapala (<i>Amaranthus Viridis</i>) Plant Extract. <i>Dananji Minosha, Kulochana Jambugaswatte, Dulanji Minosha, Nanditha Rajapaksha.</i>
11:30 am – 11:45 am	43	Formulation Cream consisting Ethanolic leaf Extract of <i>Pandanus kaida</i> and Evaluation of Anti-Inflammatory activity by Bovine Serum Albumin (BSA) Protein Denaturation Assay. <i>K.G.E.D.S. Senavirathna, H.G.N. Rajapaksha.</i>
11:45 am – 12:00 noon	44	Formulation and Evaluation of Anti-Inflammatory Cream of Ethanolic Extract of <i>Codariocalyx motorius</i> by Bovine Serum Albumin (BSA) Protein Denaturation Assay <i>E.A.N.K.Edirisinghe, H.G.N.Rajapaksha.</i>
12:00 noon – 12:15 pm	45	Formulation and Evaluation of a Sunscreen Lotion Using Onion (<i>Allium cepa</i>) Skin Extract. <i>Dulanji Minosha, Kulochana M. Jambugaswatte, Dananji Minosha, Nanditha Rajapaksha.</i>
12:15 pm – 12:30 pm	46	Extraction And Characterization Of Microcrystalline Cellulose From Rice Husk For Pharmaceutical Tablet Formulation. <i>I.U. Manamperi, J. Wickramaarachchi, K.A.H.G. Kuruppu, C.J. Abeyagunawardena.</i>
12:30 pm – 12:45 pm	57	Computer-Based Identification of Potential Farnesyl Pyrophosphate Synthase Inhibitory Compounds from <i>Eleusine indica</i> (Goose Grass). <i>M. K. M. L. Pieris, A. K. Kothalawala, K. S. Senathilake, H. G. N. Rajapaksha.</i>
12:45 pm – 01:00 pm	63	Phytochemical Profiling and Bioactivity Assessment of <i>Coleus amboinicus</i> Leaf Extract: Potential for Pharmaceutical Applications. <i>A.J.F Azra, M.D.K.M. Gunasena, B.A.A.O. Pieris, K.M. Jambugaswaththa, S.S. Millavithanachchi.</i>

Technical Session I - Bioenergy and Biofuel Generation Technology - Poster Presentations

Date : 03.04.2025

Time : 11:00 am – 01:00 pm

Venue : Exam Hall

Session Chair		Dr. Gayani Dias
Panel Member		Dr. Choshani Dalukdeniya
Session Coordinator		Ms. S. H. L. N. Kularathne
Time	Paper ID	Paper Title & Authors
11:00 am– 01:00 pm	06	Optimization of the Composition Ratio with Inoculum selection for Co-Digestion to Minimize the waste generation of Animal Waste after the Bio Energy Production. <i>W.A.H. V Perera, K.M.S. Gimhana, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
	15	Evaluate the Calorific value and Economic Feasibility in Biogas production through Co -Digestion of Animal Farm Waste. <i>W.A.H. V Perera, W.P.T. D Kusumapala, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
	16	Evaluation of Pretreatment Efficiency for Sustainable Animal Waste Management and Enhancement of Production Efficiency at the Laboratory Scale. <i>W.A.H. V Perera, K.M.N.D.K.K.Keerthirathna, K. S Hosan, R.J.M.D.D. P Wijesekara, H.V. V Priyadarshana, K.R. Koswattage.</i>
	22	Design and Simulation of a Biomass Cogeneration Unit to Replace Diesel Combustion, Enhance Sustainability, and Reduce Non-Renewable Carbon Emissions. <i>S.S. Vidanapathirana, P.M. Abesundara, E.R.J.M.D.D.P. Wijesekara.</i>
	25	Simulate the Decanter Solid Drying System for Optimum Drying Condition. <i>H.A.T. Lakmal, P.M. Abesundara, E.R.J.M.D.D.P. Wijesekara.</i>
	37	Co-Digestion of Food Waste and Rubber Industry Filter Sludge for Enhanced Biogas Production. <i>W.D.G Nipun Tharaka, P.M. Abesundara, E.R.J.M.D.D.P. Wijesekara.</i>
	48	Utilization Of Cashew Nut Shell Ash As A Sustainable Replacement In Briquette Production. <i>A.D.A. Wasuka, S.V.A.A. Indupama, A.M.P.C.Amarasinghe.</i>
	56	Purification, Fuel Blend And Characterization Study Of Tire Pyrolysis Oil. <i>Sahan Dilhara, Sudewa Vithanage, A.M.P.C.Amarasinghe.</i>
	73	Biomass Energy from Invasive Species: Investigating <i>Pinus caribaea</i> In Sabaragamuwa Province, Sri Lanka. <i>B.G.U.K. Batagoda, S.H.L.N. Kularathneand E.P.R.H.H.W. Nilmalgoda.</i>

	75	Transforming Defective Rubber Tracks into Energy: A Sustainable Pyrolysis Solution for Waste Disposal. <i>B.G.L. Sampath, S.H.L.N. Kularathne, E.P.R.H.H.W. Nilmalgoda.</i>
	77	Pyrolysis as a Sustainable Approach for Coconut Shell Waste Management and Resource Recovery. <i>D.M.L.R. Madhusanka, S.H.L.N. Kularathne, E.P.R.H.H.W. Nilmalgoda.</i>

Technical Session I - Applied Biotechnology and Microbiology - Poster Presentations

Date : 03.04.2025

Time : 11:00 am – 01:00 pm

Venue : Exam Hall

Session Chair		Prof. R. G. U. Jayalal
Panel Member		Dr. R. K. C. Jeewanthi
Session Coordinator		Ms. B. A. A. O. Peiris
Time	Paper ID	Paper Title & Authors
11:00 am – 01:00 pm	11	Online Crime Complaint Portal to Anonymously Complain Environment Crimes and Forest Fires. <i>K.S. Hosan, W.A.H.V. Perera, A.S. Wickramasinghe, H.V.V. Priyadarshana, E.R.J.M. D.D.P. Wijesekara, K.R.Koswattage.</i>
	53	Analyzing The Impact of Environmental Temperature on The Chemistry of Tea. <i>H.W.C. Dilka, A.M. Thrimawithana, W.V.S.K. Wasalthilaka.</i>
	61	Evaluation of Microbial, Physicochemical, and Phytochemical Properties of an Ayurvedic Polyherbal Drug; Nawarathna Kalka, with the Storage Time. <i>G.R.A. Gunasekara, T.K. Nawarathne, R.K Jayarathne, M.D.K.M. Gunasena.</i>
	71	Optimization of Solvent-based Extract of Oil-soluble Bioactive Compounds from Palmyrah (<i>Borrassus flabeliber</i> L.) Fruit Pulp. <i>K. Anusuja, B Anuluxshy, S.S. Millavithanachchi, V. Samsan kapil.</i>
	80	Optimization of time-temperature regime for efficient artificial inoculation of sugarcane smut pathogen; <i>Sporisorium scitamineum</i> . <i>H.K.N. Ranahansi, A.N.W. S. Thushari.</i>

Technical Session I - Drug Discovery and Development - Poster Presentations

Date : 03.04.2025

Time : 11:00 am – 01:00 pm

Venue : Exam Hall

Session chair		Dr. P.K.G.S.S. Bandara
Panel Member		Mr. N. M. Y. K. Bagyawantha
Session Coordinator		Ms. M. P. M. S. Pathirana
Time	Paper ID	Paper Title & Authors
11:00 am – 01:00 pm	20	Formulation, Quality Assessment, And Comparison Of Herbal Hair Dyeing Oil With Marketed Oil. <i>W.W.D.D.Weedagama, J.M.K.M. Jambugaswaththa, T.D.C.M.K.Wijayasiriwardena.</i>
	31	Perceptions and Practices Regarding Antibiotic Usage Among University Members at Sabaragamuwa University of Sri Lanka Based on the Area and Faculty. <i>I.M.P.N Ilangasingha, E.R.J.M.D.D.P. Wijesekara, A.M.P.C. Amarasinghe, Nilanka Senarathne.</i>
	32	Perceptions and Practices Regarding Antibiotic Usage Among University Members at Sabaragamuwa University of Sri Lanka Based on Age Categories. <i>P.B.M. Medhani, E.R.J.M.D.D.P. Wijesekara, A.M.P.C. Amarasinghe, Nilanka Senarathne.</i>
	36	Perceptions and Practices Regarding Antibiotic Usage Among University Members at Sabaragamuwa University of Sri Lanka Based on Educational Level. <i>L.R.A.S. Pieris, E.R.J.M.D.D.P. Wijesekara, A.M.P.C. Amarasinghe, Nilanka Senarathne.</i>
	39	Formulation and Evaluation of Antibacterial and Antiperspirant Deodorant Stick from Eucalyptus Oil. <i>N. M. D. Hansika, H. G. N Rajapaksha.</i>
	47	Cream Formulation For Effective Reduction Development Of Stretch Marks During Pregnancy. <i>A.R.Dasanayake, H.G.N.Rajapaksha, Paul Devaraj.</i>
	52	The effect of Piper longum on the extraction of bioactive compounds in the Paspanguwa herbal formula. <i>H.S.M. Chandrasiri, I.A.A. Gunasekara, M.G.A.N Perera.</i>
	54	Sustainable Extraction And Characterization Of Microcrystalline Cellulose (MCC) From Peanut Shells Using Different Acid Types. <i>H.I. Aravindi, K.A.H.G. Kuruppu.</i>
	55	Comparative Assessment of Tablet Formulation with Microcrystalline

		Cellulose Extracted from Corn Husk and Commercial Microcrystalline Cellulose as a Tablet Excipient. <i>Prabhashini R.L.C, Pathirana M.P.M.S, Dilshan M.N, Kuruppu K.A.H.G, Abeyagunawardena C.J.</i>
	64	Phytochemical Profiling and Bioactivity Assessment of <i>Osbeckia octandra</i> (L.): A Potential Source for Pharmaceutical Applications. <i>U.A.S.D.S. Wijayagunawardana, M.D.K.M. Gunasena, B.A.A.O. Pieris, K.M. Jambugaswaththa.</i>
	65	Phytochemical Profiling, Antioxidant, and Antibacterial Activities of <i>Solanum trilobatum</i> Leaf Extract: Potential for Pharmaceutical Applications. <i>S. Sopana, M.D.K.M Gunasena, B.A.A.O. Pieris, K.M. Jambugaswaththa.</i>

TECHNICAL

SESSION II

Technical Session II - Advances in Emerging Sciences - Oral Presentations

Date : 03.04.2025

Time : 02:00 pm – 03:30 pm

Venue : Lecture Hall 01

Session Chair		Prof. R. V. S. P. K. Ranatunga
Panel Member		Mr. Malith M De Silva
Session Coordinator		Ms. Vindya Mathangaweera
Time	Paper ID	Paper Title & Authors
02:00 pm – 02:15 pm	19	Zeta Potential and Colloidal Stability of Carbon Sphere, Reduced Graphene Oxide (rGO), and TiO ₂ Nanofluids: A Comparative Study. <i>K. S. Hosan, T. N. Wijerathne, R. H. H. D. Premachandra, K. W. A. T. Kulasuriya, A. R. P. H. Wijewardhana, W. A. H. V. Perera, D. K. A. Induranga, H. V. V. Priyadarshana, G. D. C. P. Galpaya, K. R. Koswattage.</i>
02:15 pm – 02:30 pm	21	Design of a Heat Exchanger for Enhanced the Energy Efficiency and Optimize the Effluent Treatment Plant Operation in the Fabric Manufacturing Industry. <i>K.A.C.N. Kaluarachchi, P.M. Abesundara, E.R.J.M.D.D.P. Wijesekara.</i>
02:30 pm – 02:45 pm	27	A Novel Approach to the Synthesis and Characterization of Chitin and Chitosan from Oyster Mushrooms Through a Controlled Chemical Process. <i>H.M.V.M.B. Samarakoon, D.P.I.D. Pathirana, N.N.H.A.C. Pabasara, V. Kirthika, H.V.V. Priyadarshana, K.R. Koswattage.</i>
02:45 pm – 03:00 pm	29	Shot Analysis of Batsmen in Cricket Matches using ResNet-50. <i>J. I. Randika, H. D. N. Jayawardhana, H. D. C. N. Gunawardana, B. T. G. S. Kumara, D. K. A. Induranga, G. D. K. V. Maduwantha.</i>
03:00 pm – 03:15 pm	51	Separation Silicon From Boiler Bottom Ash And Check Moisture Absorption Potential As A Sustainable Waste Management Solution For Boiler Bottom Ash. <i>A.H.W.C. Dilnuwan, A.M.P.C.Amarasinghe.</i>
03:15 pm – 03:30 pm	58	Enhancing Electrical Conductivity of Polyurethane-Based UV-Curable Resin Using Reduced Graphene Oxide. <i>S.A.A. Udyoga, A.D. Kasthuriarachchi, W.P.L. Weerasinghe, A.S. Wickramasinghe, K.A.M. Gannadeva, H.D.C.N. Gunawardana.</i>

Technical Session II - Mechanical Engineering Technology - Oral Presentations

Date : 03.04.2025

Time : 02:00 pm – 02:45 pm

Venue : Lecture Hall 02

Session Chair		Dr. N.P. Liyanawaduge
Panel Member		Dr. N. Sadeera Bandara
Session Coordinator		Ms. Sanduni Sasikala
Time	Paper ID	Paper Title & Authors
02:00 pm – 02:15 pm	18	Designing Of A Fabric Elongation Tester. <i>T.S.C Alahakoon, W.W.T.B Weerakoon, A.S.U.P Rathnayake, N.P Liyanawaduge.</i>
02:15 pm – 02:30 pm	28	Design and Development of an Ergonomic One-Handed Handle for Household Cleaning Tools. <i>H.M.V.M.B. Samarakoon, D.P.I.D. Pathirana, W.M.D.K.C. Weerakoon.</i>
02:30 pm – 02:45 pm	33	Study of Industrial Battery Cooling Plate Thermal Properties using Computational Fluid Dynamic (CFD) Model based on Prepared rGO and TiO ₂ Nanofluids. <i>K.S. Hosan, T.N. Wijerathne, R.H.H.D. Premachandra, K.W.A.T. Kulasuriya, A.R.P.H. Wijewardhana, W.A.H.V. Perera, H.V.V. Priyadarshana, D.K.A. Induranga, G.D.C.P. Galpaya, K.R. Koswattage.</i>

Technical Session II - Electrical and Electronic Engineering Technology - Oral Presentations

Date : 03.04.2025

Time : 02:00 pm – 03:00 pm

Venue : Lecture Hall 03

Session Chair		Dr. Iromie Gunasekara
Panel Member		Ms. AMC Malkanthi
Session Coordinator		Ms. Raneesha Jayasena
Time	Paper ID	Paper Title & Authors
02:00 pm - 02:15 pm	10	Platform Independent Mobile App for Airport Runway Light Monitoring with Maintenance Tracking. <i>K.S. Hosan, W.A.H.V. Perera, W.A.D.T. Jayawardhana, H.V.V. Priyadarshana, E.R J.M.D.D.P. Wijesekara, K.R. Koswattage.</i>
02:15 pm – 02:30 pm	12	Review on Improving the LiDAR Technology for Adverse Weather Conditions. <i>M.S. Wanigarathne, W.T.L.S. Fernando, J.A.D.M. Dharmathilaka, P.R.S. Tissera.</i>
02:30 pm – 02:45 pm	30	Development of a High-Torque DC Servo Motor with a Compact Worm Gear Transmission. <i>D.A.A.S. Dissanayaka, H.D.N. Jayawardhana, M.W.A.L.S. Wijewickrama, H.D. Ekanayaka, P.P.M.P. Weerasinghe, D.K.A. Induranga.</i>
02:45 pm – 03:00 pm	35	Optimizing of Electromagnetic Coil Design for Magnetic Reciprocating Engines as an Alternative to Internal Combustion Engines. <i>H.D.N. Jayawardhana, D.A.A.S. Dissanayaka, M. W.A.L.S. Wijewickrama, J.I. Randika, H.D.C.N. Gunawardana.</i>