

**SRI LANKA ASSOCIATION FOR LABORATORY ANIMAL SCIENCE**

**“Openness, Transparency and Accountability in  
Laboratory animal experimentation: The Unmet Need”**

**11<sup>th</sup> Annual Scientific Sessions and International Conference 2023/2024**

January 20-21, 2024

The Hilton Colombo, Sri Lanka

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SRI LANKA ASSOCIATION FOR LABORATORY ANIMAL SCIENCE

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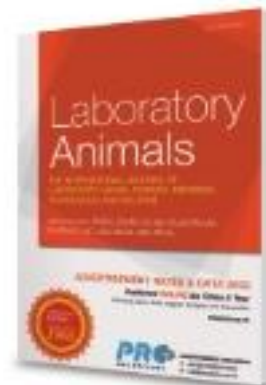




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### **Best Journal Publication**

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## Message from the Chief Guest



Dear Friends and Colleagues,

I am deeply honoured for the invitation to be the Chief Guest at the 11<sup>th</sup> Annual Scientific Sessions and International Conference of the Sri Lanka Association for Laboratory Animal Science. This conference is organized under the theme ‘Openness, transparency, and accountability in laboratory animal experimentation: The unmet need’ which is a timely need at global level.

The purpose of this two-day conference is to bring together those working regionally in the field of laboratory animal science to discuss a range of pertinent contemporary topics, including the 3Rs and animal-based research, animal ethics and welfare, alternatives to animal experimentation, and others. Talks will include artificial intelligence in the vivarium, anaesthesia of laboratory animals as well as other talks from national and international speakers, in addition to the opportunity to present and review scientific work of researchers.

I look forward to meeting you in January 2024.

Yours truly,

Patricia V. Turner, *MS, DVM, DVSc, DACLAM, DABT, DECAWBM (AWSEL)*

Corporate Vice President, Global Animal Welfare, Charles River and  
University Professor Emerita, University of Guelph, Guelph, ON, Canada

## Message from the Guest of Honour I



Indeed, the title “Guest of Honour” itself suggests the great feeling I have at being offered this distinction by the Sri Lanka Association for Laboratory Animal Science. My career as a veterinarian has focused on Laboratory Animal Science and Medicine. My journey continues with 37 years in this field, starting with a post-doctoral fellowship in 1986 at the University of Washington, in the USA. I’ve had the good fortune to gain perspectives from working in academia, with government facilities, and in the biotechnology industry, as a practitioner, researcher, and instructor. Enriching the work experiences have been opportunities to volunteer with local, national, and international associations that work to advance laboratory animal science for the good of people and animals. Many colleagues along the way have acted as mentors and friends and deepened by understanding not only of the practical and necessary aspects of laboratory animal work, but also of the critical role of promoting cultural understanding. I thank SLALAS for providing me with this opportunity to share ideas, to continue to learn from others, and to strengthen the collegial bonds that inspire me.

Cynthia A. Pekow, *DVM, DACLAM, CPIA*

Clinical Assistant Professor

Chief of the Veterinary Medical Unit, University of Washington, USA

## Message from the Guest of Honour II



Dear Esteemed Conference Attendees,

I am honoured to extend a warm and enthusiastic welcome to all of you on the 11<sup>th</sup> Conference of the Sri Lanka Association for Laboratory Animal Science. It is with great pleasure that we gather here to explore and advance the critical field of laboratory animal science, a discipline that plays a pivotal role in advancing scientific research, biomedical breakthroughs, and the welfare of laboratory animals. However, the validity, usefulness, and relevance of some types of research needs to be carefully considered. Different arguments in favour and against animal-based research must be taken into account and discussed. Public concerns cannot and should not be ignored.

This conference promises to be a remarkable platform for the exchange of knowledge, insights, and innovations within the realm of laboratory animal science with the focus on Openness, Transparency and Accountability in laboratory animal experimentation. I encourage each of you to actively participate in the conference's activities, engage in thoughtful discussions, and explore opportunities for future collaborations. Your presence and contributions are crucial in furthering the ethical and scientific dimensions of laboratory animal research.

Let us work together to ensure that our scientific endeavours remain humane, ethically sound, and aligned with the highest standards of research integrity. Together, we can make a significant impact on the welfare of laboratory animals and the advancement of scientific knowledge.

I look forward to meeting all of you, sharing our collective wisdom, and collectively advancing the field of laboratory animal science.

Wishing you a productive and inspiring conference!

Vera Baumans, *DVM, PhD, DECLAM*

Emeritus professor in Laboratory Animal Science  
Utrecht University, The Netherlands

## Message from the President



It is with immense pleasure and honour I pen this message to welcome all of you to the 11<sup>th</sup> Annual Scientific Sessions and International Conference of the Sri Lanka Association for Laboratory Animal Science. This conference is another opportunity to embark on a collective journey of knowledge sharing, innovation, and collaboration and thus it stands as a testament to our commitment for the advancement of the respective field of science.

The theme of this 2-day conference ‘Openness, Transparency and Accountability in laboratory animal experimentation: The Unmet Need’ was selected to make aware of an issue existing at global level. The distinguish panel of experts in the programme will enlighten us in finding necessary solutions.

As we delve into the realms of knowledge dissemination and exploration during the conference, let us remain mindful of our responsibility to leverage our learnings for the greater good towards laboratory animals. Also, let us strive not just for academic and professional excellence but also for societal impact and positive change. By this way, we can collectively address the challenges that lie ahead and unearth new opportunities that can benefit all.

I take this opportunity to extend my heartfelt gratitude to Emeritus Professor Patricia Turner for her support in mediating financial support through Charles River. Laboratory Animals Limited, UK, is another organization which came forward to support us financially. I appreciate their support as well in this endeavour. I appreciate very much the support extended by Professor Arvind Ingle, the Chair of the Asian Region of the International Council for Laboratory Animal Science (ICLAS) in obtaining financial support from ICLAS. Without all this support we cannot organize a conference of this magnitude. I owe a special thanks to Dr. Suresh Poosala, Founder of Oncoseek Bio Pvt Ltd. for coming forward and sponsoring cash awards and medals for the best oral and poster presentations at the scientific sessions. I wish to mention my heartfelt gratitude to my teacher Dr. D. S. Kodikara too.

I also wish to express my gratitude to the Chief Guest, Emeritus Professor Patricia Turner, Guests of Honour Professor Cynthia Pekow and Emeritus Professor Vera Baumans, Guest speakers; Dr. Suresh Poosala, Dr. Patrick Sharp, Professor Arvind Ingle, Professor Cholawat Pacharinsak and Dr. Mayuri Thammitiyagodage for readily accepting my invitation to be with us to share their knowledge.

I am indebted to all the members of the executive committee, teachers and friends for their contributions making this conference a reality. Their dedication and enthusiasm are the driving forces behind the success of this event. I wish you all a productive and rewarding experience at this conference.

Sincerely

*Vidya Nidhi Professor Mangala Gunatilake, BVSc, PhD, FSLCVS, MLAS, FELASA*

President 2023/2024

Founder President

## Message from the Honorary Secretary



As the Honorary Secretary of the Sri Lanka Association for Laboratory Animal Science, it is an honour and privilege to write this message for the 11<sup>th</sup> Annual Scientific Sessions and International Conference 2024. This is the most awaited event in our SLALAS calendar, which provides a great platform for all the laboratory animal researchers in Sri Lanka to meet national and international experts in the field.

The theme of this year's Scientific Sessions is "Openness, Transparency, and Accountability in Laboratory Animal Experimentation: The unmet need". Through this, we aim to enhance the knowledge about laboratory animal science among the scientific and the general community and to promote the importance of transparency, accountability, and openness of laboratory animal experiments among upcoming researchers.

This 11<sup>th</sup> Scientific Session promises to unveil the latest advancements across the field of laboratory animal science through our distinguished international and national speakers, and researchers. Participants will have the opportunity to meet with experts in the field of laboratory animal science and share their experiences.

I take this opportunity to extend my gratitude to our sponsors, organizing committee, the speakers, and every participant who has played a role in making this event a reality.

Wishing you all a rewarding and enriching two days.

Thank you.

Dr. Hasanthi Rathnadiwakara, *BVSc, PG Dip in LAS*  
Honorary Secretary 2023/2024



# 11<sup>TH</sup> ANNUAL SCIENTIFIC SESSIONS AND INTERNATIONAL CONFERENCE PROGRAMME

*Day 1: 20<sup>th</sup> January 2024*

## INAUGURATION

8.30 a.m. – 9.00 a.m.	Registration
9.00 a.m. – 9.20 a.m.	Inauguration of the 11 <sup>th</sup> Annual Scientific Sessions & International Conference
9.20 a.m. – 9.30 a.m.	Welcome address by the President
9.30 a.m. – 9.40 a.m.	Address by the Chief Guest <b>Emeritus Professor Patricia V. Turner</b> Corporate Vice-President Global Animal Welfare at Charles River Laboratories
9.40 a.m. – 9.50 a.m.	Address by the Guest of Honour I <b>Prof. Cynthia A. Pekow</b> Clinical Assistant Professor Chief of the Veterinary Medical Unit, University of Washington, USA
9.50 a.m. – 10.00 a.m.	Address by the Guest of Honour II <b>Emeritus Professor Vera Baumans</b> Dept. of Laboratory Animal Science Utrecht University, The Netherlands
10.00 a.m. – 10.45 a.m.	Presidential Address <b>Prof. Mangala Gunatilake- Founder of SLALAS</b> Dept. of Physiology Faculty of Medicine, University of Colombo
10.45 a.m. – 10.50 a.m.	Presenting a Token of Appreciation to <b>Dr. D. S. Kodikara</b> , Founder member of SLALAS
10.50 a.m. – 11.00 a.m.	Vote of Thanks by the Honorary Secretary <b>Closure of the Inauguration Ceremony</b>
11.00 a.m. – 11.30 a.m.	<b>Opening of the 1<sup>st</sup> LAS Exhibition in Sri Lanka</b> and Morning Tea
11.30 a.m. – 12.15 p.m.	Keynote address I <i>“Artificial intelligence in the vivarium: Promise or Peril?”</i> <b>Emeritus Professor Patricia V. Turner</b>
12.15 p.m. – 1.00 p.m.	Keynote address II <i>“Openness Around Animal Research”</i> <b>Prof. Cynthia A. Pekow</b>
1.00 p.m. – 1.45 p.m.	Lunch & Fellowship

1.45 p.m. – 2.45 p.m.	Free paper session I
2.45 p.m. – 3.30 p.m.	Guest speech I <i>“Lab Animal Models and Alternatives – A Historical Review”</i> <b>Dr. Suresh Poosala</b> Founder of Acasta Health & Oncoseek Bio Pvt Ltd. India
3.30 p.m. – 4.15 p.m.	Reading citations and Awarding Honorary Membership of SLALAS
4.15 p.m. – 5.00 p.m.	e-Poster presentations & Evaluation
5.00 p.m. – 5.30 p.m.	Evening tea & Closure of Day 1
7.30 p.m. Onwards	Conference Dinner & Fellowship (Tickets)

***Day 2: 21<sup>st</sup> January 2024***

9.00 a.m. – 9.40 a.m.	Keynote address III <i>“Balancing the use of animals in research and society concerns”</i> <b>Emeritus Professor Vera Baumans</b>
9.40 a.m. – 10.20 a.m.	Guest Speech II <i>“Planning &amp; Designing the Green Vivarium: Towards More Sustainable Biomedical Research”</i> <b>Dr. Patrick Sharp</b> Executive Director, Department of Animal Research and Veterinary Services University of California, USA
10.20 a.m. – 10.50 a.m.	Morning Tea & Fellowship
10.50 a.m. – 12.30 p.m.	Anaesthesia Symposium Resource persons: <b>Prof. Cholawat Pacharinsak</b> Director of Veterinary Anaesthesia, Analgesia and Surgery Department of Comparative Medicine, Stanford University, USA  <b>Dr. Patrick Sharp</b> University of California, USA
12.30 p.m. – 1.30 p.m.	Free paper session II
1.30 p.m. – 2.10 p.m.	Lunch & Fellowship
2.10 p.m. – 2.50 p.m.	Guest Speech III

	<p><i>“Feeding and nutrition of laboratory rodents”</i>  <b>Prof. Arvind Ingle</b>  Scientific Officer, Tata Memorial Centre, ACTREC,  Kharghar, Navi Mumbai, India</p>
2.50 p.m. – 3.30 p.m.	<p>Guest Speech IV  <i>“The Challenging Role of Laboratory Animal Veterinarian- Sri Lankan Scenario”</i>  <b>Dr. Mayuri G. Thammitiyagodage</b>  Head, Dept. of Laboratory Animal Science,  Medical Research Institute, Colombo</p>
3.30 p.m. – 4.10 p.m.	<p>Roundtable Discussion – Animal Facility Technical Officers  <i>Moderators:</i>  <b>Dr. Sachini Amarasekara &amp; Dr. Prasadi N. de Silva</b>  Faculty of Science, University of Colombo</p>
4.10 p.m. – 4.20 p.m.	<p>Overview on novelties introduced in the year 2023/2024</p>
4.20 p.m. – 4.40 p.m.	<p>Award Ceremony  <b>Emeritus Professor Vera Baumans Award</b> for the best journal publication sponsored by SLALAS   <b>Oncoseek Bio Pvt. Ltd. sponsored Awards and Medals</b> for the best oral and poster presentations   <b>Dr. Sharmini Jayasekera Award</b> for the best oral presentation sponsored by SLALAS   Awards for the winners of competitions</p>
4.40 p.m. – 5.00 p.m.	<p>Presentation by  Awardee of Emeritus Professor Vera Baumans Award for the best journal publication</p>
5.00 p.m. – 5.15 p.m.	<p>Vote of thanks by the Honorary Secretary</p>
5.15 p.m. – 5.30 p.m.	<p>Evening tea  Closure of 11<sup>th</sup> Annual Scientific Sessions &amp; International Conference</p>
5.30 p.m. onwards	<p>AGM of SLALAS</p>

## LIST OF ORAL AND POSTER PRESENTATIONS

### Oral presentations:

#### Original research

1. **Evaluation of Synergistic Antioxidant Activity of *Withania somnifera* and *Psidium guajava* Extracts**  
Wanasinghe, W.A.D.M.P., and Ratnayake, W.M.K.M.\*
2. **Microbiological Status of the Laboratory Animal Colonies at the Medical Research Institute (MRI), Sri Lanka**  
Karunakaran, R.\*, Thammitiyagodage, M.G., Deshapriya, A.B.M.G., Pathirage, S., Karunanayake, L.
3. ***In Vitro* Anti-Inflammatory, Antioxidant Properties and *In Vivo* Toxicity of Phycobiliproteins Isolated from *Gracilaria hikkaduensis* (Rhodophyta)**  
Saunmya, M.E.N., Kariyawasam, I.U., and Gunathilake, K.V.K.\*
4. **Screening of Zoo-chemical Analysis and *In Vivo* Toxicity in *Fromia indica* Crude Extract**  
Perera, K.K.K., Gunathilake, K.V.K.\*
5. **Assessing the Toxicity and Biocompatibility of *Spondias dulcis* Aqueous Bark Extract Using Zebrafish FET236 Bioassay for Safe Medicinal and Industrial Applications**  
Weththasinghe, A.V., Nithya, S., Madhuranga, H.D.T.\* , Samarakoon, D.N.A.W., Siriwardena, M.A., Herath, H.M.L.P.B., Uluwaduge, D.I.

#### Review

6. **Future of Cancer Research using Tumoroids and Humanized Mice**  
Naik, N.N.\*, Poosala, S.

#### Report

7. **ICLAS Activities Towards Education and Training for the Laboratory Animal Professionals Across the Regions**  
Ingle, A.\*

### Poster presentations:

#### Original research

1. ***In Vitro* Trypsin Inhibition Activity of Three Selected Edible Mushrooms in Sri Lanka**  
Fernando K.H.E., Dedigama H.D., Abesinghe A.H.M.A.N., Nawaruwan G.S.D., Siriwardene E.J., Kumari K.D.K.P., Ratnayake W.M.K.M.\*
2. **Evaluation of Behavioural Changes in Wistar Rats on Sounds of Mobile Phones**  
Thilakarathna, P.T.A., Thammitiyagodage, M.G., Karunakaran, R., Gunatilake, M.
3. **Retrospective Analysis of Postmortem Records of Hartley Guinea Pigs and New Zealand White Rabbit Colonies to Find Out the Most Prevalent Reasons for their Deaths**  
Mendis, W.U.K.\*, Thammitiyagodage, M.G., Karunakaran, R.

4. **A Comparative Study on the Toxicity and Biocompatibility of *Evolvulus alsinoides* L. Aqueous Extract - In Various Developmental Stages of Zebrafish (*Danio rerio*) Using the FET236 Bioassay**

Madhuranga, H.D.T.\*, Samarakoon, D.N.A.W., Herath, H.M.L.P.B.

5. **Retrospective Analysis of Breeding Data from Inbred Mice Colonies Maintained in the Animal Centre, Medical Research Institute, Colombo 08**

Jayathilake, J.M.N.J.\*, Pitigalaarachchi, P.A.A.C., Karunakaran, R., Guruge, M.,  
Thammitiyagodage, M.G.

#### Review

6. **Investigating Lipid Metabolism Pathways with *Drosophila* Model**

De Silva, D.\*, Gunatilake, M.

#### Proposal

7. ***In vitro* and *In vivo* Study of Assessing Cytotoxicity, Embryotoxicity, Anti-anaemic, and Other Hematopoietic Potentials in Latex of *Pterocarpus marsupium* Including its Bioactive Ingredients Mediating such Potentials – A proposal presentation**

Basnayake, B.M.P.I.\*, Gunatilake, M., Goonasekera, H.W., Muro, A., Lokuhetty, D.,  
Ediriweera, M.K., Thammitiyagodage, M.G.

#### Report

8. **Role of IACLAM in Establishing and Elevating the Standards of Laboratory Animal Medicine Throughout Its Constituent Colleges**

Ingle, A.\*, Baumans, V., Bailey, M., Hanai, K., Kang, B., Lood, N., Heqenqvist, P.

## ***SPEAKER PROFILES***

## Keynote Speaker I



**Patricia V. Turner, BSc, MS, DVM, DVSc, MRCVS, DACLAM, DABT, DECAWBM (AWSEL)**

Corporate Vice President, Global Animal Welfare, Charles River and  
University Professor Emerita, University of Guelph, Guelph, ON, Canada

Emeritus Professor Patricia V. Turner is a laboratory animal veterinarian and pathologist who works as Corporate Vice-President, Global Animal Welfare for Charles River Laboratories. In this role, she is responsible for assessing welfare risks and developing global animal welfare policy and related training. She is Professor Emerita at the University of Guelph, where she worked previously as a professor and program leader of laboratory animal science in the Department of Pathobiology. Her research group explores refinement of animal pain detection and mitigation and euthanasia practices, refinement of research animal behavior management programs, as well as impediments to human behavior change to enhance research animal care. Professor Turner is currently the Vice-President of the American College of Laboratory Animal Medicine (ACLAM), Immediate Past-President of the World Veterinary Association, and an author and editor of many academic publications on animal welfare and ethics, laboratory animal science, and small mammal pathology.



## Keynote Speaker II



**Cynthia A. Pekow, DVM, DACLAM, CPIA**

Clinical Assistant Professor

Chief of the Veterinary Medical Unit, University of Washington, USA

Professor Cynthia Pekow is an attending veterinarian at the Veterans Affairs Puget Sound Health Care System in Seattle, Washington. She has veterinary board certification as laboratory animal medicine specialist (ACLAM) and certification as a professional research animal oversight committee administrator (CPIA). She volunteers with national and international associations in laboratory animal science, including the American Association for Laboratory Animal Science (AALAS, president in 2003), the International Council for Laboratory Animal Science (ICLAS, President 2019-2023), and the accrediting body AAALAC, International (ad hoc site visitor, Chair of the Board in 2023), and helps to assist in improving and harmonizing lab animal science around the nation and world.

## Keynote Speaker III



**Vera Baumans, *DVM, PhD, DECLAM***

Emeritus professor in Laboratory Animal Science  
Utrecht University, The Netherlands

Emeritus Professor Vera Baumans, veterinarian by training, is a Laboratory Animal Science Specialist and working in the field of Laboratory Animal Science since 1983, when the Department of Laboratory Animal Science was established at the Veterinary Faculty of the Utrecht University. She was employed as an Animal Welfare Officer of the Utrecht University supervising the welfare of the laboratory animals, from (transgenic) mice to cattle, which are used at Utrecht University and Utrecht Medical Centre.

Together with Professor Bert van Zutphen in the new Department of Laboratory Animal Science, she set up courses in Laboratory Animal Science, mandatory by the Dutch law on animal experiments. Many courses in Laboratory Animal Science abroad (e.g. Portugal, Budapest, Riga, Athens, Stockholm, Brazil, South Africa, Sri Lanka, India, Turkey, Ethiopia, Ghana, Egypt, Malaysia, Indonesia) were set up under her responsibility.

She is a co-editor of the Dutch and English textbook on Laboratory Animal Science used in these courses. Her research focussed on the impact of the environment on behaviour and well-being of laboratory animals.

She is professor emeritus in Laboratory Animal Science at the Karolinska Institute in Stockholm, Sweden, where her research focussed on the impact of the environment on post-operative recovery and the need for pain relief in laboratory rodents.

She is a founding member of the Veterinary European College of Laboratory Animal Medicine, in 2011 she was awarded with the German Felix -Wankel – Animal Welfare Research Prize and in 2018 with the Animal Welfare Award of the Swiss Association of Laboratory Animal Science.

## Guest Speaker I



### **Dr. Suresh Poosala, *DVM, MS, PhD***

Founder, Acasta Health., & Oncoseek Bio Pvt. Ltd.

Founder Chair, 3R Advances International Conference

Dr. Suresh Poosala is currently working on innovative therapeutics and drug screening platforms. Dr. Poosala is actively pursuing research that has the potential to disrupt drug discovery and has several applications in assessing safety, discovering new therapeutic entities, and understanding of many diseases. His start-up is actively involved in developing novel therapeutics for various indications using Regenerative Medicine. He is also working on a novel predictive diagnostic biomarker panel for predicting real biological age and screening for disease risks, for wellness and health-span promotion. Dr. Poosala graduated with a Veterinary Science degree from A P Agricultural University, Tirupati, in 1986, and earned a Masters in Microbiology and Immunology from the same university. He received his PhD from Iowa State University, USA in 1994.

He is involved with AAALAC, DBT, FSSAI, AALAS, LASA, SAEA, etc., He is the first council member on AAALAC International from India. He is on the executive council board of The Federation of Asian Biotech Association – FABA. He is also a member on several other organizations that promote research in Medicine and Biotechnology. He has published thirty scientific papers in reputed journals including Nature, PNAS, Immunology, PLOS etc., Dr. Poosala also initiated the annual international conference on 3R Advances and Alternatives which attracts several reputed speakers and was invited by the World Congress in 2023.

Acasta Health the start-up of Dr. Poosala which works on aging degenerative conditions was nominated as the Top 10 Start-ups by Pharma Outlook for 2023.

## Guest Speaker II



### **Patrick Sharp, *DVM, MRCVS, MANZCVS, DACLAM***

Executive Director, Department of Animal Research Services  
Executive Director, Veterinary Services  
University of California, Merced

Dr. Sharp received his Doctor of Veterinary Medicine from Purdue University. He completed his Comparative Medicine postdoctoral fellowship at the Washington University School of Medicine in St. Louis and is a Diplomate of the American College of Laboratory Animal Medicine. He is a member of the Royal College of Veterinary Surgeons and the Australia New Zealand College of Veterinary Surgeons.

Dr. Sharp serves as a confidential private consultant providing advice on various matters, including facility planning/design and AAALAC accreditation preparation. Dr. Sharp has worked in government, industry, and has held global academic appointments and positions at the David Geffen School of Medicine at UCLA (Los Angeles, California, USA), University of Florida (Gainesville, Florida, USA), the National University of Singapore (Singapore), and the Fundação Champalimaud's Centre for the Unknown (Lisboa, Portugal). Dr. Sharp served as an AAALAC ad hoc consultant specialist. He is an Adjunct Professor at Murdoch University.

Dr. Sharp supports Comparative Medicine training including both ACLAM-approved training programs and international training opportunities for laboratory animal graduate veterinarians and veterinary students. He strives to increase the quality of animal care through personnel education at all animal care levels and through the design and construction of better vivaria and research support facilities.

## Guest Speaker III



### **Arvind Ingle, *MVSc, PhD***

Scientific Officer 'H' & Officer-in-Charge,  
Laboratory Animal Facility,  
ACTREC, Navi Mumbai, MS, India

Professor Arvind Ingle is a distinguished scholar and accomplished professional in the field of Veterinary Pathology, renowned for his significant contributions to research, education, and leadership. Born with an innate passion for veterinary science, he embarked on his academic journey by obtaining an MVSc in Veterinary Pathology from the prestigious Post Graduate Institute, PKV, Akola in 1992. Subsequently, he earned his PhD in 2012, further solidifying his expertise in the field.

Professor Ingle's professional journey began as a Veterinary Officer in the State Government, where he served diligently for two years before joining the Tata Memorial Centre, Mumbai as a Scientific Officer 'C' in October 1993. His commitment to advancing knowledge led him to pursue a one-year Post-Doctoral Fellowship at the National Institutes of Health (NIH), USA, from December 1999 to November 2000, under the prestigious 'Fogarty International Fellowship'.

Throughout his illustrious career, Professor Ingle has cultivated a diverse range of research interests, including developing animal models, microbiological and genetic quality control, embryo cryopreservation, human tumor xenograft, and comparative pathology. His scholarly pursuits are reflected in his extensive publication record, with over 105 publications in journals of national and international repute, accumulating 2270 citations and an impressive H-index of 28.

Not only a prolific researcher, but he is also deeply committed to the academic community. He has served as a Reviewer and Editorial Board Member for 15 different national and international journals. His expertise has been acknowledged by his appointment to the Board of Studies for Veterinary Pathology at MAFSU, Nagpur, during the periods of 2007-2011 and 2020 to the present.

Professor Ingle's international engagements further underscore his global impact on the field. He has attended numerous international conferences, enriching his perspectives by visiting countries such as the USA, Italy, Switzerland, Thailand, Malaysia, Singapore, Japan, Sri Lanka, South Korea, China, Czech Republic, and France.

A trailblazer in the field of Laboratory Animal Science, he has served in key leadership roles, including being a Governing Board Member of the International Council for Laboratory Animal Science (ICLAS) in Brussels, Belgium, from 2020 to 2023. He also chairs the Education and Training Committee at ICLAS during the same period.

Professor Ingle's contributions have been recognized with prestigious awards, including the Dr. CM Singh 'Best full research article award' from the Indian Association of Veterinary Pathologists in 2010. He was honored with the 'Best Laboratory Animal Pathologist' Award by IAVP in 2013 and the "TurnKey Facility Leader of the Year-2014" Award by ALN Magazine, USA.

As a testament to his leadership and influence, Professor Ingle has held esteemed positions such as the Past President of the Laboratory Animal Scientists' Association (LASA), India, and the Asian Federation of Laboratory Animal Science Associations (AFLAS), Japan. He is also the Founder President of the Indian College of Laboratory Animal Medicine since 2020.

In recognition of his outstanding contributions to the field, Professor Arvind Ingle was elected as a Fellow of IAVP in 2019. With a remarkable track record of delivering over 160 invited lectures at national and international conferences, his expertise continues to shape the future of Veterinary Pathology and Laboratory Animal Science.

## Guest Speaker IV



**Mayuri G. Thammitiyagodage, BVSc, MPhil, PhD**

Head of the section  
Department of Laboratory Animal Science  
Medical Research Institute

Dr. M.G. Thammitiyagodage joined the MRI in 1994 and in 1996 she was given special training in laboratory Animal Science at the University of Kita-Sato and the National Institute of Health in Japan for 9 months duration. She maintains a facility with internationally designated laboratory animal species for research including a laboratory animal feed production unit. She was a founder member and a committee member of the Sri Lanka Association for Laboratory Animal Science (SLALAS) till the year 2022 and was a past president of the SALALS in the year 2014. She has contributed to the development of the guidelines for the care and use of laboratory animals for scientific research compiled by the SLALAS.

She is a visiting lecturer at the Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Faculty of Livestock, Fisheries and Nutrition, University of Wayamba, and Department of Zoology, University of Colombo. She has more than 25 full-paper journal articles and contributed to more than a hundred abstracts in scientific forums. She also contributed to many research projects by training students. She received awards for supervising students under the Support Scheme for Supervision of Research Degrees (SUSRED) in the years 2017 and 2023 for her contribution to supervising two M.Phil. thesis for the University of Sri Jayewardenepura. She was awarded the S. Ramachandran Prize for the best research presentations in nephrology in 2012 and 2015 by the Sri Lanka Medical Association. She was awarded the National Research Council Merit Awards in 2012 and 2016, the best poster award in the year 2016 by the Allergy and Immunology Society of Sri Lanka and Dr. Perumal Pillai Award for the best research paper in the Sri Lanka Veterinary Journal in the year 2017. She served as the chairperson of the General Research Committee of the Sri Lanka Association for the Advancement of Science (SLAAS) in the year 2018 and has been a member of the Science and Technology Advisory Committee and Ethics Committee of SLAAS and President of the SLAAS section A committee in the year 2015. She also served as a member of the ethics committee of the Sri Lanka Medical Association from 2013 to 2019. Currently, she is a member of the research and ethics committees of the Medical Research Institute.

She presented at the Asian Federation of Laboratory Animal Science Congress (AFLAS) in 2018 in Singapore and in 2023 she represented Sri Lanka at the AFLAS Congress in South Korea under the theme of the Role of Laboratory Animal Veterinarians in Asia.



## Speaker - Anaesthesia symposium



### **Cholawat Pacharinsak, DVM, PhD, DACVAA**

Director of Veterinary Anaesthesia, Analgesia and Surgery  
Department of Comparative Medicine,  
Stanford University, USA

Professor Cholawat Pacharinsak is a Diplomate of the American College of Veterinary Anaesthesia and Analgesia (DACVAA). He received his DVM from Chulalongkorn University, Thailand and trained in an Anaesthesiology and Pain Management residency program and received his Masters degree at Washington State University. He completed his PhD in Pain Neuroscience from Comparative Molecular Biosciences program, University of Minnesota. Prior to arriving at Stanford, Professor Pacharinsak was a faculty member in Anaesthesiology and Pain Management at Michigan State University and Purdue University; and served as a Clinical Specialist at University of California, Los Angeles.

## ***ABSTRACTS OF SPEAKERS***

## ***Keynote Address I***

### **ARTIFICIAL INTELLIGENCE IN THE VIVARIUM: PROMISE OR PERIL?**

**Emeritus Professor Patricia V. Turner**

Charles River Laboratories and  
University of Guelph, Guelph, ON, Canada

Advances in artificial intelligence (AI) technology together with the creation of massive datasets and the need for significant e-storage capacity may create uncertainties regarding how far we should go in terms of bringing technology into the vivarium. Questions remain as to whether we should be monitoring data or the animals themselves to determine the welfare status in a given animal room. Developments in AI in other sectors working with animals suggest that machine learning can be used to track individual animals, but more importantly, can be trained to detect emotions such as contentment, pain or distress in individual animals based on recognition of subtle changes in facial expression together with animal vocalizations and infrared cameras to detect changes in body temperature. Given our concern regarding refinement of the lab animal environment to ensure that animals are provided with a good life, how might this technology be harnessed to monitor animal health and evaluate animal well-being in laboratory animal science? In addition to monitoring animals and detecting changes in stress and emotional state, AI can also be used to create learning and development content for training personnel. Imagine working with technology that can tailor learning approaches to the individual styles of those in need of training and can create as many practice quizzes as a learner needs to feel confident of the material. Finally, artificial intelligence may be used to predict employees who are susceptible to compassion stress and fatigue based on organizational, employment and personal factors. This in turn may be used to develop better and more tailored mindfulness and resiliency building programs to increase compassion satisfaction amongst those working with research animals. These and other topics related to the use of artificial intelligence in the vivarium will be explored in this session.

## ***Keynote Address II***

### **OPENNESS AROUND ANIMAL RESEARCH**

**Professor Cynthia A. Pekow**

Veterinary Medical Unit, University of Washington, USA

Globally there is a strong animal activist movement opposed to use of animals in research. This movement continues to negatively influence public opinion about the necessity of animals to scientific advancement by promoting falsehoods about futility of animal models, cruel research personnel, inhumane conditions, and money wasted in the name of science. Without a strong and persuasive response to the contrary from the research community, false and misleading information is accepted as true. Public support is necessary for societal permission to continue work with research animal models; negative public sentiment leads to passage of legislation limiting or stopping animal research. Bright scientists leave the field or are dissuaded from entering because of harassment and negative societal views surrounding laboratory animal care and use. One positive and effective response to counter the anti-research movement is the embrace of openness around animal research. Additional benefits for the institutions that promote openness include diminished harassment from animal activist groups, fewer demands for information regarding the animal research program, and increased pride for those who work at the institution. This presentation will discuss a definition of openness, provide some history around the openness movement in Europe and the US, and suggest ways to promote openness at an institutional level as well as regionally.

## ***Keynote Address III***

### **BALANCING THE USE OF ANIMALS IN RESEARCH AND SOCIETY CONCERNS**

**Emeritus Professor Vera Baumans**

Department of Animals, Science and Society, Division Laboratory Animal Science,  
Utrecht University, Utrecht, The Netherlands

Mankind has always used animals, first for food, transport, company and later in basic and applied research for more than 2000 years. Aristotle and the founder of medicine Hippocrates were amongst the first to use animals in order to describe blood, milk and organs, based on dissections. Galen, physician of one of the Roman emperors, made a scheme for the distribution of blood and spirits, but it was Harvey in the 17<sup>th</sup> century who described for the first-time blood circulation. Aristotle and Thomas Aquinas stated that “Humans are rational and more intelligent than other animals”. However, chimpanzees might be more intelligent than infants and mentally retarded people....

A major question has been for a long time “can animals suffer”? The French philosopher Descartes stated in the 17<sup>th</sup> century that nonhuman animals are machines, devoid of mind and consciousness and hence lacking sentience. Although there was a general acceptance of experimental medicine as contributing to man’s welfare, a debate started on the justification of animal experiments with Jeremy Bentham, stating “the question is not, can they reason? Nor can they talk? But can they suffer?”, referring to infants, mentally retarded people, and animals. Although there are major medical advances that have depended on the use of animals in research, such as antibiotics, insulin, vaccines, Peter Singer stated in his book *Animal liberation* in 1975 “... if a single experiment could cure a major disease, that experiment would be justifiable. But in actual life the benefits are always much more remote, and often they are nonexistent” ... Thus, the society became more aware and opposed to animal experimentation. Some people felt that we don’t have the right to use animals, as animals and humans are equal beings, and everyone has an intrinsic value that must be respected. Other people had the opinion that experiments on animals are unreliable, “a mouse is not a human” and history has proven that it is certainly true. It is almost impossible to predict translational success to humans. Moreover, people felt that many experiments are unnecessary, such as research on cosmetics, LD 50.

How to deal with these dilemmas? Should we abolish all animal-based research? For the moment that does not seem feasible. But legislation can help to regulate animal experiments. Animal Ethics Committees (IACUC’s) can balance the benefit of an experiment against the suffering of the animals. Transparent communication with the public in order to create public awareness can be achieved by a forum for dialogue and a public debate and by education. And the 3 Rs of Replacement, Reduction and Refinement should be used wherever possible, adding a 4<sup>th</sup> R of Responsibility for us as researchers.

## ***Guest speech I***

### **LAB ANIMAL MODELS AND ALTERNATIVES – A HISTORICAL REVIEW**

**Dr. Suresh Poosala**

Acasta Health., & amp; Oncoseek Bio Pvt. Ltd.

Imaging in 3D *in vitro* spheroid culture holds paramount importance in modern biomedical research and drug development. Unlike traditional 2D cell cultures, 3D spheroid models better mimic the complex cellular interactions and microenvironment found in living tissues. The ability to visualize these structures in three dimensions provides researchers with invaluable insights into cell morphology, spatial distribution, growth dynamics, and cellular responses to various stimuli. Advanced imaging techniques such as confocal microscopy and 3D imaging systems enable the detailed examination of spheroid structures and the monitoring of cellular processes in a more physiologically relevant context. This visual understanding enhances our comprehension of disease progression, drug efficacy, and toxicity assessments, ultimately contributing to the development of safer and more effective therapies.

Oncoseek Bio, being one of the few Indian start-ups who are working in 3D spheroid disease modelling has achieved many milestones in spheroid imaging. Its diverse portfolio includes spheroid disease modelling of several solid cancers, NASH (Non-alcoholic steatohepatitis), Fibrosis, Oncolytic virus mediated drug delivery to cancer solid cancer spheroids, and COVID-19 disease infection model.

This presentation includes highlights of imaging and related research findings from each of the earlier mentioned disease modelling programs.

## ***Guest speech II***

### **PLANNING AND DESIGNING THE GREEN VIVARIUM: TOWARDS MORE SUSTAINABLE BIOMEDICAL RESEARCH**

**Dr. Patrick Sharp**

Dept. of Animal Research Services and Veterinary Services  
University of California, Merced

Many organizations seek to develop, plan and build/remodel less environmentally impactful or ‘green’ vivaria; however, assembling the various green options is challenging. This overview will review various vivaria systems, inputs, and outputs to provide attendees with detailed green vivaria considerations with a few examples peppered in. The objective is to provide contemporary information on building or remodelling vivaria to be more sustainable. The session comprehensively outlines key vivaria components that could yield a ‘greener’, cost-effective, and more sustainable vivaria, that provides optimal animal care, a pleasant working environment, and facilitates preventative maintenance. Detailed topics include key vivarium costs, key equipment review, sanitation, heating, ventilation, and air conditioning (HVAC), housing, utilities, and structural components. The target audience is those considering new construction, building renovations, or those seeking green upgrade options in an existing vivarium.



### ***Guest speech III***

#### **FEEDING AND NUTRITION OF LABORATORY RODENTS**

**Professor Arvind Ingle**

Laboratory Animal Facility,  
ACTREC, Navi Mumbai, MS, India.

Nutrition plays an important role in maintaining the health of the living creatures by providing energy sources for work, reproduction, growth, and maintenance. Use of animals which are fit and healthy yields reproducible results. The main components in food are proteins, carbohydrates, fat, vitamins, and minerals, whereas non-nutrients are fiber and water. Nutrition also keeps several of the infections at bay if the individual is taking balanced nutrition. Two of the most important criteria for declaring an animal fit for experimentation is whether it is nutritionally healthy and it is free of any disease. If one has to stay infection free, one has to have a knowledge of routes of infection (feed can be one of them) and what is required to prevent the growth of organisms on the food outside and inside the body. Over nutrition like obesity alters the susceptibility of rodents to infection and may also influence the breeding performance and average lifespan. This may be mediated by hormones like leptin or cytokines like tumor necrosis factor or interleukins. Certain viral infections may cause rapid depletion of nutrients like vitamin 'A' and the nutritional requirements may go up during an infection episode. In the case of rodents, the diet may be classified into maintenance, production and experimental. Depending upon the type of experimentation, the form of diet for rodents may be powder, wet dough, or pellets. Each one of them has its own advantages and disadvantages. Based on the species-specific requirements, we may need to provide some of the species with either natural vegetables, fruits, or pellets. Based on the purpose, animal feeding may be *ad libitum* or restricted. Variations in food intake may occur when animals are either being treated through food or fasted. One must decide on the source of ingredients for the diet while selecting the food. Synthetic or special diets are sometimes required for some specific experiments. Ascertaining quality of freshly procured or stored food and sterility are some of the important factors to be dealt with while planning the storage. These points will be discussed in detail in the lecture.

## ***Guest speech IV***

### **ROLE OF LABORATORY ANIMAL VETERINARIANS- SRI LANKAN PERSPECTIVES**

**Dr. Mayuri G. Thammitiyagodage**  
Dept. of Laboratory Animal Science,  
Medical Research Institute, Sri Lanka

The role of laboratory animal veterinarian is unique, and its Sri Lankan perspective is challenging. The importance of laboratory animal veterinarians was recognised by the JICA /MRI technical cooperation in the inception of the New Animal Centre at the Medical Research Institute. Two permanent carder positions for veterinarians were established in the Ministry of Health in 1999 and they were given training in Japan.

Internationally designated SPF laboratory animal colonies were imported to Sri Lanka, and they were maintained inside a barrier system according to a Standard Operating Procedure (SOP). The feed preparation unit was also identified as an essential element due to unavailability of commercial laboratory animal feed in Sri Lanka.

Maintaining the barrier system and providing clean disease-free animals for research is the biggest challenge faced by veterinarians. Continuous animal feed production to maintain the breeding colonies is also a challenging situation. Changing the attitudes of the staff attached to animal facilities is really needed as most service deliveries are in their hands and can affect animal welfare. Training and teaching activities on laboratory animal science as well as alternatives to animal experiments needed contributions from veterinarians and this requirement is gradually increasing. Veterinary services are needed in animal ethics committees and various associations related to laboratory animal science.

The duties of laboratory animal veterinarians are vast and challenging in Sri Lanka than other countries as Laboratory Animal Science is still emerging. Service deliveries are affected by the unsteady economic status of the country. Technical deficiencies in the country are a hindrance not to developing laboratory animal science on par with the rest of the world. However, it is necessary to expand the service component of laboratory animal science by recruiting more veterinarians as there is a huge demand for these services in the country.

## ***Anaesthesia symposium***

**Professor Cholawat Pacharinsak**

Department of Comparative Medicine, Stanford University, USA

**Dr. Patrick Sharp**

Dept. of Animal Research and Veterinary Services

University of California, Merced

Anaesthesia-related procedures in animal research range from minor to major procedures. Because anaesthesia is a common procedure, to provide more effective anaesthesia, anaesthetists should familiarize themselves with different anaesthetic protocols, monitoring techniques and the interpretation of those monitoring techniques. Although gas anaesthesia is commonly used and typically encouraged, when possible, injectable anaesthesia is another option when gas anaesthesia cannot be provided. Regardless of anaesthetic methodology (inhalant or injectable), anaesthetic monitoring is vital to reducing morbidity and mortality. Because anaesthesia monitoring equipment and techniques can vary between smaller and larger animals, understanding the equipment, techniques, and interpreting these parameters are key to enhancing anaesthesia effectiveness. This symposium will discuss both gas and injectable anaesthesia and monitoring techniques. This basic and effective anaesthesia symposium is suited for veterinarians, researchers, veterinary technicians, and animal ethics committee members.

***MACE OF SLALAS***

***AND***

***PRESIDENT'S GARLAND***

## MACE OF SLALAS



The Mace of SLALAS was designed and donated by Dr. D.S. Kodikara, a founder member who served the first executive committee of SLALAS in the year 2013/2014.

This Mace measures 116 cm in length and 16 cm in height and weighs 4 kg. The Mace of SLALAS is made of a staff of nadun (*Pericopsis mooniana*) with ornamentation in stainless-steel and brass. The globe in the Mace represents the world, while the two disks above and below the globe are engraved with the SLALAS name depicting its identity.

The Mace of SLALAS is carried for the first time in the SLALAS procession during the inauguration of the 11<sup>th</sup> Annual Scientific Sessions and International Conference on 20<sup>th</sup> January 2024.

## PRESIDENT'S GARLAND



The President's garland too was designed and donated by Dr. D.S. Kodikara. The crafted items included in the garland were decided according to the principles of the traditional art in Sri Lanka.

This garland is worn by the President during the inauguration ceremony of the Annual Scientific Sessions and Conference of SLALAS.

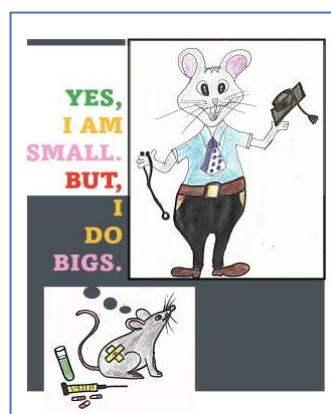
# ***EXHIBITION***

An exhibition of this nature is organized for the first time in the history of laboratory animal science (LAS) field in Sri Lanka.

This exhibition will be a learning experience for the newcomers to the field while creating an opportunity to display.

- educational items developed by five students in the first batch of the Postgraduate Diploma course in Laboratory Animal Science conducted by the Dept. of Physiology, Faculty of Medicine, University of Colombo
- posters on commonly used laboratory animal models
- submissions for the art competition
- submissions for the poster competition
- submissions for the photography competition

After this exhibition, all the exhibits will be displayed in the planned LAS museum which is the first of its kind.



# ***WINNERS***



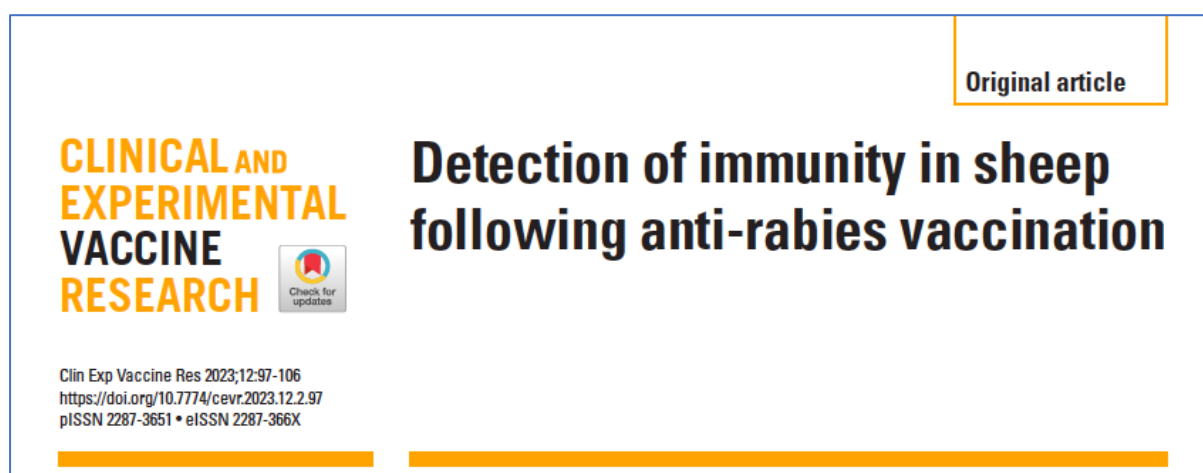
## EMERITUS PROFESSOR VERA BAUMANS AWARD FOR THE BEST JOURNAL PUBLICATION IN LABORATORY ANIMAL SCIENCE

### *Initiation of the Emeritus Professor Vera Baumans Award*

Emeritus Professor Vera Baumans extended her support without any hesitation in all the activities commenced by Prof. Mangala Gunatilake for the initiation of LAS education and development of the laboratory animal science discipline in Sri Lanka. As a kind gesture for the support extended by Emeritus Professor Vera Baumans, the award proposal presented was unanimously accepted by the SLALAS Executive Committee 2022/2023 in recognition of Emeritus Professor Vera Baumans. She nominated Prof. Mangala Gunatilake, the Founder of the SLALAS for the Charles River Prize 2022 awarded by the American Association for Laboratory Animal Science (AALAS). Prof. Mangala Gunatilake received this prestigious award at the Annual Conference of AALAS held in Louisville, Kentucky in 2022, becoming the first South Asian recipient of this award. A part of the Charles River Prize money was deposited in a fixed deposit and the interest earned annually will be utilized to present the **Emeritus Professor Vera Baumans Award for the Best Journal Publication in Laboratory Animal Science** commencing from January 2024 at the 11<sup>th</sup> Annual Scientific Sessions and International Conference of SLALAS.

### *Winner of the Emeritus Professor Vera Baumans Award – 2023*

Dr. Hasanthi Rathnadiwakara (*BVSc, PG Dip in LAS*)  
PhD candidate  
Faculty of Medicine  
University of Colombo



## WINNERS OF THE COMPETITIONS

Nearly a 100 Nobel prizes awarded to Physiology or Medicine until now are animal-based scientific innovations. Therefore, we as researchers/scientists need to respect the enormous sacrifices made by laboratory animals for the benefit of mankind.

To commemorate the contribution of laboratory animals for the advancement of science and medicine SLALAS organized poster, art, photography, and oratorical competitions under different categories of entries as a novel activity.

### Winners

#### *Poster competition*

- 1<sup>st</sup> Place – Mr. K. Nimantha Madushan Wickramaratne  
Undergraduate, CINEC Campus, Malabe
- 2<sup>nd</sup> Place – Ms. P. Manuththara Hasini  
Undergraduate, KIU, Battaramulla
- 3<sup>rd</sup> Place – Ms. R.M. Dharani Rathnayake  
Undergraduate, Wayamba University of Sri Lanka

#### *Art competition*

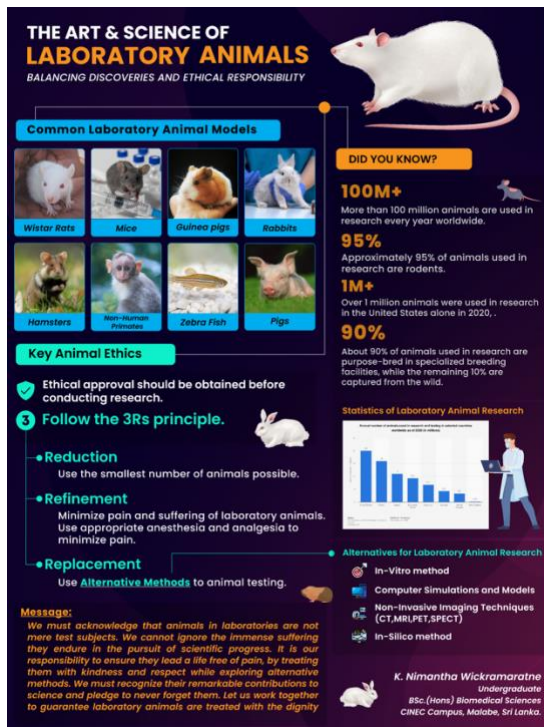
Open category – Ms. M. G. Sajini Veronika Senadirathne

#### *Photography competition*

- 1<sup>st</sup> Place – Mr. Muhammad Rislin Muhammad Riswan  
Undergraduate, Ocean University of Sri Lanka
- 2<sup>nd</sup> Place – Ms. A. M. Nilushika Dhananjani Senavirathne  
Undergraduate, Faculty of Indigenous Medicine  
University of Colombo

*Oratorical competition* – None qualified

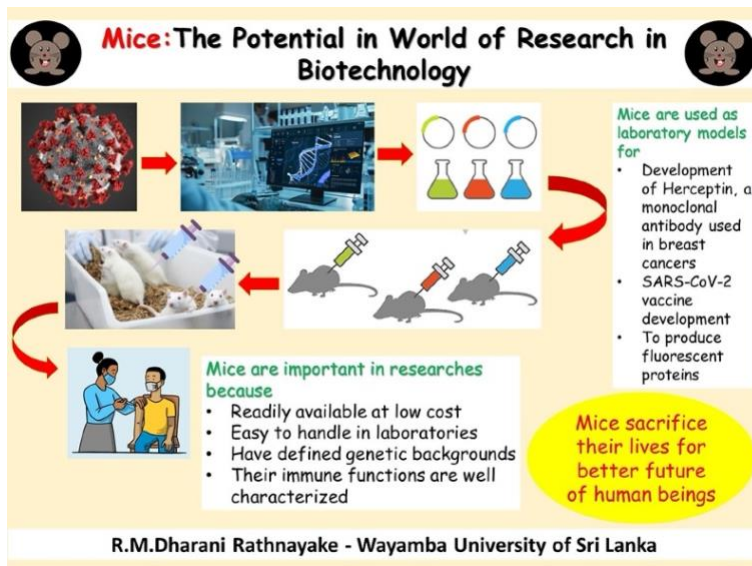
## WINNING ENTRIES OF THE POSTER COMPETITION



1<sup>st</sup> place



2<sup>nd</sup> place



3<sup>rd</sup> place

## LIST OF ORAL PRESENTATIONS

### DAY 01 : Chairpersons : Prof. Mangala Gunatilake & Dr. Krishanthi Premaratne

TIME	INDEX	ABSTRACT & AUTHORS	PAGE No.
1.45 p.m.	OP-01	<b>EVALUATION OF SYNERGISTIC ANTIOXIDANT ACTIVITY OF <i>WITHANIA SOMNIFERA</i> AND <i>PSIDIUM GUAJAVA</i> EXTRACTS</b> <u>Wanasinghe, W.A.D.M.P., Ratnayake, W.M.K.M.*</u>	51
1.55 p.m.	OP-02	<b>MICROBIOLOGICAL STATUS OF THE LABORATORY ANIMAL COLONIES AT THE MEDICAL RESEARCH INSTITUTE (MRI), SRI LANKA</b> <u>Karunakaran, R., Thammitiyagodage, M.G., Deshapriya, A.B.M.G., Pathirage, S., Karunanayake, L.</u>	52
2.05 p.m.	OP-03	<b><i>IN VITRO</i> ANTI-INFLAMMATORY, ANTIOXIDANT PROPERTIES AND <i>IN VIVO</i> TOXICITY OF PHYCOBILIPROTEINS ISOLATED FROM <i>GRACILARIA HIKKADUWENSIS</i> (RHODOPHYTA)</b> <u>Saumya, M.E.N., Kariyawasam, I.U., and Gunathilake, K.V.K.*</u>	53
2.15 p.m.	OP-04	<b><i>ICLAS ACTIVITIES TOWARDS EDUCATION AND TRAINING FOR THE LABORATORY ANIMAL PROFESSIONALS ACROSS THE REGIONS</i></b> <u>Ingle, A.*</u>	54

### DAY 02 : Chairpersons – Prof. Mangala Gunatilake & Prof. Tharanga Thoradeniya

12.30 p.m.	OP-05	<b>SCREENING OF ZOO-CHEMICALS AND <i>IN VIVO</i> TOXICITY IN <i>FROMIA INDICA</i> CRUDE EXTRACT</b> <u>Perera K.K.K., Gunathilake K.V.K.*</u>	55
12.40 p.m.	OP-06	<b>ASSESSING THE TOXICITY AND BIOCOMPATIBILITY OF <i>SPONDIAS DULCIS</i> AQUEOUS BARK EXTRACT USING ZEBRAFISH FET236 BIOASSAY FOR SAFE MEDICINAL AND INDUSTRIAL APPLICATIONS</b> <u>Weththasinghe, A.V., Nithya, S., Madhuranga, H.D.T.* , Samarakoon, D.N.A.W., Siriwardena, M.A., Herath, H.M.L.P.B., Uluwaduge, D.I.</u>	56
12.40 p.m.	OP-07	<b>FUTURE OF CANCER RESEARCH USING TUMOROIDS AND HUMANIZED MICE</b> <u>Naik, N.N.* and Poosala, S.</u>	57

# ***ABSTRACTS OF ORAL PRESENTATIONS***

## EVALUATION OF SYNERGISTIC ANTIOXIDANT ACTIVITY OF *WITHANIA SOMNIFERA* AND *PSIDIUM GUAJAVA* EXTRACTS

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### Abstract

Antioxidants are substances that delay or prevent molecules from oxidation. Due to their low cost and low toxicity, current research has concentrated on developing antioxidant formulations from herbal plants. *Psidium guajava* (“Pera” in Sinhala) and *Withania somnifera* (“Amukkara” in Sinhala) are medicinal plants used in Sri Lankan traditional medicine. As identifying synergistic activity between natural compounds is crucial in developing formulations, the present study aimed to evaluate the synergistic activity of *P. guajava* and *W. somnifera*. Fresh leaves of *P. guajava* were collected from Weliweriya, Sri Lanka, and the roots of *W. somnifera* were purchased from Wickramasinghe aushadhahala, Yakkala, Sri Lanka. Both plant materials were authenticated. Two crude extracts were prepared by refluxing with 95% ethanol. *In-vitro* antioxidant activity of the concentration gradients of each sample was evaluated by using 1,1-diphenyl-2-picrylhydrazyl (DPPH) assay. In addition to those combinations for the two crude extracts, that is *P. guajava*: *W. somnifera* 1:1, 2:1, and 1:2; were done to evaluate the synergistic activity. Ascorbic acid ( $6.25 \mu\text{g mL}^{-1}$  -  $25 \mu\text{g mL}^{-1}$ ) was used as a positive control. The radical scavenging activity of test samples was expressed as an  $\text{EC}_{50}$ , which is defined as the effective concentration of the antioxidant required to lower the initial DPPH concentration by 50%. The crude extract of *W. somnifera* showed an  $\text{EC}_{50}$  value of  $377.58 \mu\text{g mL}^{-1}$  while the crude extract of *P. guajava* showed  $146.45 \mu\text{g mL}^{-1}$ . Further  $\text{EC}_{50}$  values for three ratios of 1:1, 2:1 and 1:2 were observed as  $24.27 \mu\text{g mL}^{-1}$ ,  $38.87 \mu\text{g mL}^{-1}$  and  $10.14 \mu\text{g mL}^{-1}$  respectively. Ascorbic acid showed a  $14.44 \mu\text{g mL}^{-1}$   $\text{EC}_{50}$  value. In conclusion, the present findings showed that the combination of *P. guajava* with *W. somnifera* has more antioxidant capacity than the individual plant extract. *P. guajava* showed higher antioxidant capacity separately, but the combination of a lower level of *P. guajava* with a higher portion of *W. somnifera* showed the most effective ratio for antioxidant activity.

**Keywords:** Antioxidant, *Psidium guajava*, Synergism, *Withania somnifera*

## MICROBIOLOGICAL STATUS OF THE LABORATORY ANIMAL COLONIES MAINTAINED AT THE MEDICAL RESEARCH INSTITUTE (MRI), SRI LANKA

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### Abstract

Laboratory animals are maintained as specific pathogen-free (SPF) animals at the Laboratory Animal Centre, MRI. These colonies are maintained inside a barrier system and Standard Operation Procedure (SOP) is followed. SPF status is universal to all the laboratory animal facilities. Regular microbiological monitoring is essential to ensure whether specific pathogen-free status has been maintained. MRI facility is usually screened once a year. Objective of current study was to determine the microbiological status of the laboratory animals at MRI. The rats and mice (5% of the total population in each room is the minimum requirement) were randomly selected as follows. ICR mice-(n=8), Balb/cA-(n=3), C3H/HeN (n=4), C57BL/6N-(n=5), Wistar rats-(n=9) were humanly euthanized. Blood (1 mL) was drawn from each mouse and 3 mL from each rat by doing the cardiac puncture. Impression smears were taken from the anus and observed under the microscope. Postmortem was performed and tracheal and caecal swabs were taken. Internal organs were observed for any abnormalities. Water samples were taken from water bottles for culture. The rabbits and guinea pigs (33% of the total population in each room) were randomly selected (rabbits-(n=19), guinea pigs (n=19). Nasal swabs and food dredge were streaked on blood agar plates. Faecal samples were subjected to salt floatation tests. Serum samples were screened for specific pathogenic bacteria. Throat swabs of mice and rats were negative for pathogenic *pasturella* spps, *staphylococcus aureus*, *Streptococcus zooepidermicus*, and *Streptococcus pneumonia*. Serum samples were negative for mycoplasma. Water samples were negative for *Pseudomonas aeruginosa*. Caecal samples were negative for Salmonella, Shigella, Campylobacter and *Pseudomonas aerogenosa*. Faecal samples of rats and mice were negative for Giardia. Guinea pigs and rabbit isolates were negative for *Pseudomonas aeruginosa*, *streptococcus pneumonia*, *S.zooepidemicus*, *Staphylococcus aureus*, *pasturella multocida*, *Pasturella pneumotropica* and *Corynebacterium kutscheri*. Trichuris eggs were detected in faecal samples of rabbits and guinea pigs. But that is not a parasite listed under SPF status. In conclusion, laboratory animals of the MRI are free from most of the listed specific pathogenic bacteria and gastrointestinal worms and are suitable for research.

**Keywords:** *Medical Research Institute, Laboratory Animal Centre, Microbiological status, Laboratory animals, Specific pathogen-free animals*



**IN VITRO ANTI-INFLAMMATORY, ANTIOXIDANT PROPERTIES AND IN VIVO TOXICITY OF PHYCOBILIPROTEINS ISOLATED FROM *GRACILARIA HIKKADUWENSIS* (RHODOPHYTA)**

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**Abstract**

*Gracilaria hikkaduensis durairatnam*, is an underexplored seaweed species, endemic to Sri Lanka. Phycobiliproteins is a group of bright coloured water-soluble pigment proteins from sea weeds which are reported to have various bioactive properties, which can be beneficial in pharmacognosy. The present study was aimed to evaluate antioxidant, *in vitro* anti-inflammatory properties, and cytotoxicity of phycobiliproteins from *G. hikkaduensis*. Seaweed samples were procured from the shallow waters near Talpe, Galle, in the Southern coast of Sri Lanka, and identification was verified through morphological analysis. Phycobiliproteins were extracted in phosphate buffer. The antioxidant activity against 2,2-diphenyl-1-picrylhydrazyl (DPPH) and peroxide radicals and *in vitro* anti-inflammatory activity of the extract were evaluated. *In vivo* toxicity was assessed with *Artemia salina* lethality, *Allium cepa* cytotoxicity and zebrafish embryo toxicity assays. Inhibition concentration 50 (IC<sub>50</sub>) for antioxidant and anti-inflammatory assays and lethality concentration 50 (LC<sub>50</sub>) values for toxicity assays were calculated. Each assay was performed in triplicates. One sample t-test and Pearson correlation test was used to statistically compare the results using Minitab (Version 20) statistical software. The crude phycobiliprotein extract (CPE) yielded and displayed dose-dependent ( $r=0.947$  and  $0.876$  respectively) antioxidant activity against DPPH and peroxide radicals (IC<sub>50</sub> =  $4686.46$  and  $3189.92 \times 10^{-3} \text{ kg/m}^3$  respectively) surpassing ascorbic acid IC<sub>50</sub>:  $216.57$  and  $168.54 \times 10^{-3} \text{ kg/m}^3$  respectively. A dose-dependent ( $r=0.876$ ) anti-inflammatory activity (IC<sub>50</sub>:  $2623.68 \times 10^{-3} \text{ kg/m}^3$ ), lower than diclofenac sodium (IC<sub>50</sub>:  $94.14 \mu\text{g/ml}$ ) was also reported. The extract was toxic to *Artemia salina* nauplii (LC<sub>50</sub>:  $1117.5 \times 10^{-3} \text{ kg/m}^3$ ), and inhibited *Allium cepa* root growth (EC<sub>50</sub>:  $2235.42 \times 10^{-3} \text{ kg/m}^3$ ) with macroscopic abnormalities; gelling, presence of hooks, and necrosis. Zebrafish assay indicated a toxicity (LC<sub>50</sub>:  $2380.98 \times 10^{-3} \text{ kg/m}^3$ ) with growth retardation, reduced hatch rate, pigmentation, and pericardial oedema observations done according to the guidelines. This pioneering study explores *G. hikkaduensis*-produced phycobiliproteins, highlighting their antioxidant, anti-inflammatory effects, and *in vivo* toxicity. These findings suggest their potential as UV-protective and anti-cancer agents. Ongoing research will focus on phycobiliprotein fractionation and purification.

**Keywords:** *Anti-inflammatory, Gracilaria hikkaduensis, Phycobiliproteins, Phycoerythrin*

## ICLAS ACTIVITIES TOWARDS EDUCATION AND TRAINING FOR THE LABORATORY ANIMAL PROFESSIONALS ACROSS THE REGIONS

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### **Abstract**

The International Council for Laboratory Animal Science (ICLAS) is a scientific organization dedicated to advancing human and animal health and well-being by promoting the ethical care and use of animals in research worldwide. Aims of ICLAS are to promote ethical principles, scientific responsibilities, and animal welfare in research; advance collaboration within the global laboratory animal science community; advocate for the advancement of laboratory animal science in developing countries and regions; be a global resource for laboratory animal science knowledge and best practices. Education and training of laboratory animal professionals is one of the important focuses of ICLAS which is executed by Education & Training Committee. The mission of the ICLAS Education & Training Committee is to promote and harmonize education and training in laboratory animal science, particularly in regions of the world where such opportunities are meager. Since 2014, ICLAS has executed veterinary scholarship program for laboratory animal veterinarians to undertake ICLAS recognized certificate/ degree course. These courses are generally from Europe and the USA. For this scholarship, ICLAS can support up to 7000 Euros as a registration fee of the selected candidates wherein 4-5 such scholarships are awarded every year depending upon the availability of funds. ICLAS also runs the Visiting Grant for Professional Development since 2013 for individuals from European countries. The selected candidates are entitled to a grant of up to 2000 Euros. Besides, ICLAS also runs Grant for Training the Trainer in LAS Education for the European candidates. This grant is for the establishment of courses for any of the EU functions and develop high quality programs as per the FELASA guidelines. The selected program may receive grant up to 2000 Euros under this program. ICLAS Regional Committees comprising Africa, America, Asia, Europe, and Oceania help to disseminate the announcement of such programs to members of their regions. Several such programs are successfully run by ICLAS and benefited by many. More information on activities of ICLAS can be viewed at <https://iclas.org>.

## SCREENING OF ZOO-CHEMICALS AND *IN VIVO* TOXICITY IN *FROMIA INDICA* CRUDE EXTRACT

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### Abstract

Starfish are well known for secondary metabolites with bioactive properties yet associated with toxicity. *Fromia indica* (Family Goniasteridae) is a common starfish in the Indian Ocean, but poorly studied concerning the presence of zoo-chemicals and toxicity. The current study intends to investigate the zoo-chemical profiling and toxicity of crude extract of *F. indica*. The specimen was obtained from a local aquarium and confirmed the identity by external morphology. Followed by euthanasia, the crude extract of *F. indica* was prepared by incubating diced samples in methanol and dichloromethane (1:1 v/v) for 48 hours. The resultant extract was filtered and subjected to qualitative zoo-chemical analysis. Adapting to 3Rs concept to minimize the use of higher vertebrates, *in-vivo* toxicity of the crude extract was conducted via *Artemia salina*, zebrafish and *Allium cepa* models. The data were analysed using Minitab® 20.4 software. The results indicated the presence of saponins, tannins, quinones, phenols, flavonoids, sterols, alkaloids, and unsaturated sterols in the crude extract while, anthraquinones were absent. The lethality for *A. salina* larvae was reported as 5.62 µg/mL at 12 hours exposure, while a significant lethality ( $p < 0.05$ ) with a  $LC_{50}$  value of 1.212 µg/mL resulted in zebrafish assay after 24 hours exposure. Various non-lethal developmental abnormalities: yolk sac deformation, weakly pigmented retina, oedema formation, and notochord deformities were observed at 24-, 48-, 72- and 96- hours exposures in different concentrations (0.25, 0.50 and 1.0 µg/ mL). The crude extract significantly ( $p < 0.05$ ) induced inhibition of *A. cepa* root growth, while macroscopic abnormalities including gelling, swelling, and presence of hooks, were observed in all tested concentrations indicating potent cytotoxicity. The present study confirmed the toxic properties of *F. indica* crude extract with respect to the above alternative models, can be accounted for the use of it in cytotoxicity mediated therapeutic entities. Further studies are underway to isolate and characterize the toxic compounds from the *F. indica* crude.

**Keywords:** Bioactivities, Saponins, Starfish, Toxicity, Zebrafish

# ASSESSING THE TOXICITY AND BIOCOMPATIBILITY OF *SPONDIAS DULCIS* AQUEOUS BARK EXTRACT USING ZEBRAFISH FET236 BIOASSAY FOR SAFE MEDICINAL AND INDUSTRIAL APPLICATIONS

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## Abstract

*Spondias dulcis* belongs to the family *Anacardiaceae* and is locally known as Amberella; used in a variety of food and ayurvedic preparations in Sri Lanka. However, the toxicity and biocompatibility of the aqueous bark extract of *S. dulcis* remains unknown. Thus, this study aimed to evaluate the biocompatibility and toxicity of an aqueous bark extract of *S. dulcis* using zebrafish embryo assay (FET236 bioassay) following OECD guidelines. Bark of the *S. dulcis* were extracted using the maceration technique. The LC<sub>50</sub> in the brine shrimp lethality assay was 39 mg/mL, which was used to determine the concentration range for the zebrafish embryo assay, two-fold dilutions ranging from 2-1000 mg /mL were created. The study was conducted according to the KIU Ethics Review Committee approval. Selected healthy embryos were washed and examined under the microscope and fertilized embryos were selected for experiments. 10 fertilized eggs for each concentration treatment were treated with the extract of *S. dulcis* and the experiment was performed in three independent replicates. As a negative control, tank water was used. After exposure to the bark extract to Zebrafish embryos, hatch rate, mortality rate, survival rate, heart rate, and developmental deformities were observed at specific time points such as 48hpf, 54hpf, 72hpf, 80hpf, 96hpf. Statistical validation was performed using GraphPad Prism 9 software. Hatchability decreased with extract concentration; the highest hatchability (95%) was observed at 4 mg/mL at 80hpf. Survival rate was decreased towards the highest concentrations, reaching 0% at 500 mg/mL from 48hpf onwards. Heart rate was slightly increased (145 beats/min) at 2-4 mg/mL when compared to normal heart rate at controls ( $p < 0.0001$ ). The LC<sub>50</sub> was 63.8 mg/mL, which is observed at 96hpf. 8 mg/mL onwards was statistically significant because of which hatchability was altered, and from 62 mg/mL onwards 100% mortality was observed. The developmental deformities, pericardial oedema, and yolk sac oedema were observed, at 2mg/mL. The *S. dulcis* bark aqueous extracts 4-8 mg/mL concentration may observed as less toxic, however, it exhibited mild to moderate toxic effects at other concentrations.

**Keywords:** Biocompatibility, FET236, *Spondias dulcis*, Toxicity, Zebrafish embryos

**FUTURE OF CANCER RESEARCH USING TUMOROIDS AND HUMANIZED MICE**Naik, N.N.<sup>1\*</sup>, Poosala, S.<sup>1</sup><sup>1</sup>Acasta Health Pvt Ltd, Visakhapatnam, India\* [nikita@acastahealth.com](mailto:nikita@acastahealth.com)**Abstract**

The evolving landscape of cancer research is undergoing a paradigm shift with the widespread integration of 3Rs principle to enhance translational efficacy from pre-clinical to clinical settings. Tumoroids provide *in vitro* insights into the intricacies of tumour behaviour by mimicking the tumour microenvironment in a controlled setting, making them particularly conducive to studying disease mechanisms and drug responses. In parallel, humanized mice offer *in vivo* models with genetically engineered functional human immune systems, thus mimicking the human context. These mice also facilitate more accurate predictions relevant to human clinical trials. This review discusses recent developments, applications, advantages of these technologies, and various challenges to address. Despite numerous advantages to using tumoroids and humanized mice over traditional cancer models, there are several challenges and bottlenecks that needs to be addressed. First challenge being the high cost of establishing the models and another major challenge is the lack of optimization, standardization and quality control measures as the field is relatively new. However, the synergistic application of these technologies offers a holistic view of cancer progression and promises to revolutionize cancer research, advancing our understanding of tumour biology, drug development, and personalized treatments. In addition to optimizing the predictive value of preclinical studies, this integrated approach accelerates the identification and validation of novel therapeutic strategies. This review will discuss recent developments, applications, advantages of these technologies, and various challenges to address. In conclusion, the integrated use of 3Rs principle, tumoroids, and humanized mice represents a transformative approach in cancer research, promising improved translational relevance and personalized treatment insights.

**Keywords:** *Tumoroids, Humanized mice, Tumour microenvironment, Translation, 3Rs principle*

## WINNING ENTRY OF THE ART COMPETITION



Ms. M.G. Sajini Veronika Senadhirathne  
Open Category

A brief explanation of the art:

Animals are biologically very similar to humans. Ex: Rats' DNA is more than 95% similar to us. Also, animals are susceptible to genetic problems just like humans. Because of this, animals were used for medical research. Accordingly, animals such as mice, rabbits, and monkeys were used for various medical research, and through that they were inspired to produce medicine for diseases. Because of this animal research laboratories were very important.

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# ***ABSTRACTS OF POSTER PRESENTATIONS***

## **IN VITRO TRYPSIN INHIBITION ACTIVITY OF THREE SELECTED EDIBLE MUSHROOMS IN SRI LANKA**

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### **Abstract**

Trypsin, an enzyme from the serine protease class, is known to be involved in the degradation of proteins. Trypsin overactivity has a significant link to the development of several pathological conditions, including tumours, inflammation, and severe pancreatitis. Thus, constant and balanced activity of this enzyme is required for proper physiological processes and anti-trypsin activity plays a vital role there. Hence, there is a need to identify new trypsin inhibitors from natural sources. This study aimed to find the trypsin inhibition activity of three demanding mushroom varieties in the Sri Lankan food industry, *Agaricus bisporus* (Button mushroom), *Pleurotus ostreatus* (American oyster), and *Pleurotus cystidiosus* (Abalone mushroom). The *in-vitro* trypsin inhibition activity of aqueous extracts (6.25 mg/mL – 500 mg/mL) of the above three mushrooms was measured by a Trypsin Inhibition Assay using a spectrophotometer. Trichloroacetic acid (5%) was used to enhance protein precipitation and triplicate was used for all concentrations. The trypsin inhibitory activity of test samples was expressed as a percentage of absorbance of the test sample relative to the negative control which contained an equal volume of distilled water instead of mushroom extract which was in the test samples. The data were analysed using the SPSS software package and the *p*-value < 0.05 was considered statistically significant. The results of this study revealed that all the test sample concentrations (6.25 mg/mL – 500 mg/mL) of each mushroom extract significantly inhibit trypsin compared to the negative control. However, it was not happened in dose dependent manner. Within the tested concentration gradient *P. cystidiosus* (12.5 mg/mL) showed the highest trypsin inhibition which was  $95.62 \pm 0.01\%$ . The lowest activity ( $22.53 \pm 0.029\%$ ) was observed by *P. ostreatus* at 100 mg/mL. Thus, this study provides proof of the potent inhibitory effect on trypsin by all three tested mushroom varieties in Sri Lanka and *P. cystidiosus* was identified as the most potent one.

**Keywords:** *Agaricus bisporus*, Trypsin Inhibition, *Pleurotus ostreatus*, *Pleurotus cystidiosus*

## EVALUATION OF BEHAVIOURAL CHANGES IN WISTAR RATS ON SOUNDS OF MOBILE PHONES

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### Abstract

Animals' behavioural habits vary when they are suddenly exposed to changes in their environment. Researchers, staff of the animal house, and other handlers frequently use mobile phones inside the animal house. Mobile phone ringing may be a sound which may alter the behaviour of laboratory animals. Therefore, this study was designed to determine the impact of mobile phone ring tones on altering the behavioural patterns of rats. This study was conducted at the Medical Research Institute (MRI), Colombo using six groups of four Wistar rats in each group. The animals were separated into regions and left for 1 hour at a temperature of 24°C and humidity of 60-70%. The initial behavioural patterns were examined for 10 minutes as the control. Adult animals in groups were exposed to each mobile sample ringing (SR) 1 (200-250Hz), SR 2 (400-450Hz), SR 3 (600-650Hz), and SR 4 (800-850Hz) for one minute. The ethograms were recorded while the behavioural alterations were observed for 10 minutes. This procedure was repeated with young adults and under diverse housing patterns. The ethics approval was obtained from the Ethics Review Committee of the MRI (06/2022). The frequency of walking ( $26.9 \pm 10.0 \text{ min}^{-1}$ ), rearing ( $6.0 \pm 1.5 \text{ min}^{-1}$ ), and climbing ( $4.2 \pm 0.8 \text{ min}^{-1}$ ) behaviours decreased in both adults and young (2-month-old) Wistar rats while sleeping ( $7.4 \pm 3.9 \text{ min}^{-1}$ ) and frozen ( $39.6 \pm 3.1 \text{ min}^{-1}$ ) behaviours increased after mobile phone ringing. The majority of 6 months-old, adult male Wistar rats ( $0.19 \pm 0.08 \text{ kg}$ ) and adult females ( $0.12 \pm 0.01 \text{ kg}$ ) were shown freezing ( $37.6 \pm 1.6 \text{ min}^{-1}$ ) and sleeping ( $7.3 \pm 2.6 \text{ min}^{-1}$ ) behaviour in response to low and high frequencies. Male and female behavioural changes in response to mobile phone ringing were not significantly different ( $p=0.285$ , 95% CI). There was no significant difference ( $p=0.068$  and  $0.285$  respectively) between the group and pair housing and group and single housing of adults' behavioural pattern alteration with the mobile phone ringing. The study indicates that Wistar rats adjusted their usual behaviour to the sounds of mobile phones without taking into consideration of their sexuality, maturity, or housing style. The results of behavioural research using Wistar rats may therefore be affected by the mobile phone ringing at the animal centre while trials are being done.

**Keywords:** *Behavioural studies, Housing, maturity, Mobile phone ringing, Sex, Wistar rats*

## RETROSPECTIVE ANALYSIS OF POSTMORTEM RECORDS OF HARTLEY GUINEA PIGS AND NEW ZEALAND WHITE RABBIT COLONIES TO FIND OUT THE MOST PREVALENT REASONS FOR THEIR DEATHS

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### Abstract

Animal Centre, Medical Research Institute, Sri Lanka provides genetically defined animals that originated from Specific Pathogen Free (SPF) status from Japan for research use. Postmortems of Hartley guinea pig (*Cavia porcellus*) and New Zealand white (NZW) rabbit (*Oryctolagus cuniculus*) colonies can be utilized in welfare surveillance and uncovering noteworthy conditions. Objective of the current study was to find out the most prevalent cause of death in each colony by analyzing postmortem records retrospectively. Postmortems of guinea pigs (n=37) and NZW rabbits (n=13) of Animal Centre were retrospectively analyzed from 2017 to 2022. Correlation tests between age and gender with death were performed (CI at 95%). Bacteriological reports were also assessed. SPSS version 26.0 was used for statistical analysis. After the retrospective data analysis, live colonies were also observed to gain insight into management practices. In both groups, diagnosis was significantly associated with death ( $p<0.05$ ). The highest number of guinea pig deaths (29.73%) was due to bleeding in footpads. Heart bleeding (10.81%) was the second and uterus bleeding, stress (analyzing attributes such as, off food/water, heavy litter number, etc.), and aging (each 8.11%) were placed next. Most rabbit deaths were due to stomach rupture (53.85%), whilst torsion (23.08%) was the second, and deaths due to aging, heart failure, and congested lungs (each 7.69%) were third. Neither age nor gender was correlated with the reason in both. In guinea pig bacteriological reports (n=15), *Klebsiella sp.*, *Proteus sp.*, *Pseudomonas sp.*, *Escherichia coli*, and *Staphylococcus spp.* were detected but identified were not pathogenic strains according to biochemical tests performed. *Micrococcus spp.*, *Escherichia coli*, *Streptococcus sp.*, and *Staphylococcus spp.* were positive in rabbits (n=07). Guinea pigs are susceptible to granuloma formation in foot pads when maintained in wire-mesh cages and shifting into flat-bottom plastic cages is suggested. Routine checkups and dietary fiber analysis would be beneficial for rabbits due to high gastrointestinal-related issues.

**Keywords:** Medical Research Institute, Sri Lanka, New Zealand white rabbits, Hartley guinea pigs, postmortem records

**Acknowledgment:** We would like to express our sincere gratitude to the Department of Bacteriology, MRI for the support extended for microbiological investigations throughout.

**A COMPARATIVE STUDY ON THE TOXICITY AND BIOCOMPATIBILITY OF *EVOLVULUS ALSINOIDES* L. AQUEOUS EXTRACT -IN VARIOUS DEVELOPMENTAL STAGES OF ZEBRAFISH (*DANIO RERIO*) USING THE FET236 BIOASSAY**

H.D.T. Madhuranga<sup>1\*</sup>, D.N.A.W. Samarakoon<sup>1</sup>, H.M.L.P.B. Herath<sup>2</sup>

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**Abstract**

*Evolvulus alsinoides* L. (Convolvulaceae) commonly known as “Nil Vishnukranthi” in Sinhala; found in Sri Lanka is used for a variety of ayurvedic preparations. However, the toxicity of *E. alsinoides* aqueous plant extract remains unknown. This study aimed to investigate the biocompatibility and acute toxicological properties of *E. alsinoides* aqueous plant extract using zebrafish embryo assay (FET236 bioassay) following OECD guidelines. Wild-type male and female zebrafish were maintained at 27.0 °C, pH (7 ± 0.5) and nitrates (<0.009 g.L<sup>-1</sup>), nitrite (8-12 g.L<sup>-1</sup>), and ammonia levels (<0.05 mg.L<sup>-1</sup>) were monitored weekly. Aerial parts of the plant were extracted into distilled water using the maceration method. The LC<sub>50</sub> in the brine shrimp lethality assay was 0.41 mg/mL, which was used to determine the concentration range for the zebrafish embryo assay. Based on the findings of the brine shrimp lethality assay, two-fold dilutions ranging from 4-125 mg/mL were made. With the approval of the KIU Ethics Review Committee, the study was carried out. Ten fertilized eggs for each concentration treatment were treated with the extract and the experiment was performed in three independent replicates. As a negative control, tank water was used. After exposure to the bark extract to Zebrafish embryos, hatch rate, mortality rate, survival rate, heart rate, and developmental deformities were observed at specific time points such as 48hpf, 54hpf, 72hpf, 80hpf, 96hpf. Two-way Analysis of Variance (ANOVA) was used to compare dose-dependent differences in the response variables and Dunnet’s multiple comparison test was carried out to identify the significant differences using GraphPad Prism 9 software. Hatchability increased with extract concentration, reaching the highest (100%) at 8 mg/mL at 72 hpf. Survival rate decreased with higher concentrations, reaching less than 90% at 31, 63, and 125 mg/mL from 72 hpf onwards. Heart rate was decreased/ affected towards the highest concentration of the plant, 110 beats/min at 63 mg/mL (*p* value < 0.0001), control remained within the normal range, other than that all the resulted in heart rates were below the normal range (120-180bpm) was observed. The LC<sub>50</sub> was 61.82 mg/mL, which was observed at 96hpf. Developmental deformities were observed, including yolk sac edema (> 80% at all concentrations) and pericardial edema (> 60% at all concentrations) mainly distributed among the concentration series. There were 26% of spinal cord curvature observed at 31 mg/mL. 20% of donstructural Deformities were observed at 16 mg/mL. Although this study revealed plant extract was safe at 4 mg/mL, toxic concentrations started at 8 mg/mL and above. It still exhibited mild to moderate toxic effects at higher concentrations. Therefore, further, *in vivo* study would be recommended to evaluate the pharmacological properties of *E. alsinoides* aqueous plant extract and go for an activity-guided fractionation and isolate the most active, less toxic, biocompatible compounds.

**Keywords:** *Biocompatibility, Evolvulus alsinoides, Toxicity, Zebrafish embryos*

**RETROSPECTIVE ANALYSIS OF BREEDING DATA FROM INBRED MICE  
COLONIES MAINTAINED IN THE ANIMAL  
CENTRE, MEDICAL RESEARCH INSTITUTE, COLOMBO 08**

Jayathilake, J.M.N.J.<sup>1\*</sup>, Pitigalaarachchi. P.A.A.C.<sup>2</sup>, Karunakaran, R.<sup>3</sup>, Guruge, M.<sup>3</sup>, Thammitiyagodage, M.G.<sup>3</sup>

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**Abstract**

Sibling mating and filial mating are very powerful methods that are commonly used allover the world as inbreeding methods for mice. It allows continuing phenotypic uniformity over many generations and genetic homozygosity. Hence, inbred mice strains are popular in experimental research. Nevertheless, inbred mice strains maintained in isolation may experience deviations in breeding performance due to combinations of genetic and environmental changes, and stability of the inbred mice population contribute to accuracy of experimental findings. Current study aimed to record data from inbred mice populations methodically and analysis of data periodically to support the identification of deviations in breeding performance of population. Further, future trends of the populations were identified by developing a statistical model based on current data. Three inbred mice strains (BALB/c, C3H/HeJ, C57BL/6) maintained by Medical Research Institute, Colombo were selected and following breeding data (The period between the date of coupling and date of parturition - PCP) litter size, weaning female percentage, weaning male percentage, death percentage until weaning, success percentage until weaning) were collected from 30 years records (1991-2020). The data were statistically analysed ( $p < 0.05$ ). Then, using PCP and Litter success rate until weaning related to each population, time series modelling and forecasting were conducted. An autoregressive integrated moving average (ARIMA) model was created for forecasting data for 1 month. Higher death rates were observed in the first five years after the establishment of the facility; C3HeN (2%), C57BL/6N (12%), BALB/c (8%) and C3HeN showed 4% death rate in the period of 2010-2015. Except for these, other parameters of the study were consistent and lie within normal ranges. According to the future trend predicted by statistical models developed, no significant deviation will be caused during next 1 month. In conclusion, death rate observed could be due to inceptions and instabilities of the environmental conditions of the facility. However, the conditions have improved over the years showing no significant deviations. This indicates that the current inbreeding colony management of the facility is successful. Furthermore, validation of developed statistical models is needed for better and long-term predictions.

**Keywords:** *ARIMA model, BALB/c, C3H/HeJ, C57BL/6, Inbred mice colony*

## INVESTIGATING LIPID METABOLISM PATHWAYS WITH DROSOPHILA MODEL

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**Abstract**

*Drosophila melanogaster*, a pivotal model organism in biomedical research, offers unparalleled advantages due to its genetic simplicity and rapid life cycle. Notably, it shares conserved metabolic genes with humans, rendering it an invaluable alternative model. Recent advancements underscore its significance in elucidating fat metabolism, associated diseases, and potential therapeutic targets. This study offers a comprehensive exploration of how *Drosophila* serves as a model organism for the study of fat metabolism. The Investigation delves into lipid anabolic, enzymatic, and regulatory processes within *Drosophila*. The study further examines the parallels between fly fat body and mammalian liver in terms of storage and metabolic regulation. *Drosophila* emerges as a versatile model with diverse cell types and organs mirroring mammalian lipid metabolism and energy homeostasis. The fat body's major role in storage and metabolic regulation, analogous to the mammalian liver, becomes evident. This review uncovers insights into fat storage mechanisms, emphasizing lipid droplet accumulation in the fat body, shedding light on cholesterol and triacylglycerol dynamics. The findings underscore *Drosophila*'s suitability for studying fat metabolism and related diseases. This model organism's relevance in investigating metabolic processes and potential therapeutic targets is highlighted. The parallels between this model and mammalian systems, positioning *Drosophila* as a powerful tool in biomedical research, provide a robust foundation for translational research.

**Keywords:** *Animal model, Drosophila, Lipid homeostasis, Lipogenesis, Lipolysis*

**IN VITRO AND IN VIVO STUDY OF ASSESSING CYTOTOXICITY, EMBRYOTOXICITY, ANTI-ANAEMIC, AND OTHER HEMATOPOIETIC POTENTIALS IN LATEX OF *PTEROCARPUS MARSUPIUM* INCLUDING ITS BIOACTIVE INGREDIENTS MEDIATING SUCH POTENTIALS – A PROPOSAL PRESENTATION**

Basnayake, B.M.P.I.<sup>1\*</sup>, Gunatilake, M.<sup>2</sup>, Goonasekera, H.W.<sup>3</sup>, Muro, A.<sup>4</sup>, Lokuhetty, D.<sup>5</sup>, Ediriweera, M.K.<sup>6</sup>, Thammitiyagodage, M.G.<sup>7</sup>

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**Abstract**

Anaemia is a haematological disorder, and a large number in the developing world are affected with significant morbidity and mortality. Among them, most depend on traditional medicine to strengthen the hematopoietic action. The availability, low cost, and minor side effects are thought to be associated with this high selection rate of traditional medicine for anaemia. The *Pterocarpus marsupium* is a medicinal plant native to Sri Lanka, India, and Nepal. In which the different components are used by traditional medical practitioners in the treatment of different disease conditions, specifically, latex in enhancing haemoglobin production in anaemic patients. However, the scientific evidence for the use of the *Pterocarpus marsupium* latex as an anti-anaemic agent is extremely limited. Therefore, this study is planned to evaluate its anti-anaemic effect, erythropoietin (EPO) like effect, toxicity, phytochemical composition, and bioactive ingredients. Consequently, we aim to apply *in-vitro* and *in-vivo* assays to investigate the toxicity and favourable anti-anaemic and other hematopoietic potentials of the plant latex using normal human cell cultures, rat-derived hematopoietic stem cell cultures, zebrafish embryos, and phenyl hydrazine-induced anaemic rats with identification of bioactive ingredients that might mediate such potentials. If we discover a similar action of EPO in this plant latex, it would be beneficial in the way of treating anaemia-associated disease conditions such as chronic renal failure, myelodysplasia, rheumatoid arthritis, HIV, and cancer as a replacement for recombinant human EPO (rhEPO). This will be beneficial in the way of reducing the high cost of rhEPO treatment as well. Finally, an attempt to discover a therapeutic agent for anaemia from a safe, natural source will considerably contribute to traditional medicine/herbalism due to the crucial role of traditional medicine in the prophylaxis or therapy of haematological diseases in Sri Lanka.

**Keywords:** *Anaemia, Erythropoietin, Latex, Pterocarpus marsupium, Toxicity,*



## **ROLE OF IACLAM IN ESTABLISHING AND ELEVATING THE STANDARDS OF LABORATORY ANIMAL MEDICINE THROUGHOUT ITS CONSTITUENT COLLEGES**

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### **Abstract**

The International Association of Colleges of Laboratory Animal Medicine (IACLAM) brings together national and regional Colleges of Laboratory Animal Medicine. Over 1800 Diplomates in six Colleges are represented through IACLAM internationally. IACLAM addresses issues regarding scientific and medical research involving laboratory animals. The aim of IACLAM is to enhance welfare of research animals by supporting outreach, education, and training of highly qualified laboratory animal veterinarians by supporting the development of new Colleges of Laboratory Animal Medicine, and by promotion, harmonization of knowledge, skills, and training of laboratory animal veterinarians. IACLAM members include five full member Colleges: American (ACLAM), European (ECLAM), Indian (ICLAM), Japanese (JCLAM), and Korean (KCLAM) College of Laboratory Animal Medicine. The Philippine College of Laboratory Animal Medicine (PCLAM) joined as an Associate Member College in 2022. IACLAM assists achieving the shared objective of all these Colleges to promote the welfare and responsible use of laboratory animals through the certification of veterinary specialists, education, the dissemination of information relevant to the field, and serving as research partner. In order to take the aims forward, the IACLAM has five Standing Committees, namely, Education, Organizational, Nominations, Communications and Finance Standing Committee. In the coming year we will continue the work to increase our visibility, to aid new Colleges to be established and become members of IACLAM, and to promote the role of the laboratory animal veterinarians. More information on the IACLAM can be viewed at <https://iaclam.org/index.php>.

**Keywords:** *Laboratory Animal Medicine, Training, Veterinarians, Welfare*

## WINNING ENTRIES OF THE PHOTOGRAPHY COMPETITION



**1<sup>st</sup> place**

**Title : Expectation**

**Description :** The eyes show the expectation of freedom.



**2<sup>nd</sup> place**

**Title : ඊළඟට මමද? (Am I the next?)**

**Description :** පුංචි දැව පොතු හරිම සුවයයි නැහිට යන්නට බැහිනෙයි...  
තවත් චුට්ටක් ඉඳලා එන්නද, එනවා මම එය සත්තයි...  
(Wooden flakes are so comfortable, I don't feel like leaving...  
Can I stay little longer, I promise that I will come...)

## ***ROUNDTABLE DISCUSSION***

## **ROUNDTABLE DISCUSSION ON CHALLENGES AND FUTURE DIRECTIONS OF LABORATORY ANIMAL KEEPING**

The roundtable discussion on Challenges and Future Directions of Laboratory Animal keeping is a novel item added to the 11<sup>th</sup> Annual Scientific Sessions and International Conference of the Sri Lanka Association for Laboratory Animal Science.

This discussion showcases ideas of technical officers affiliated with four local research institutions/universities based on the following topics:

- Challenges faced by lab animal technicians in addition to financial constraints
  - Safety and perceptions concerning occupational risk and injury
  - Training opportunities & work performance appraisal
  - Interpersonal relationships and practicing the culture of challenge
- Impact of compassion fatigue
  - How do the institutions deal with it currently?
  - Need for an improved support system

This discussion is moderated by Dr. Sachini Amarasekara and Dr. Prasadi N. de Silva, from the Faculty of Science, University of Colombo.

## PANEL OF TECHNICAL OFFICERS OF ROUNDTABLE DISCUSSION



Mr. A. B. M. Gayan Deshapriya  
Medical Research Institute,  
Colombo



Mr. Manjula Dhanasekara  
Faculty of Veterinary Medicine &  
Animal Science,  
University of Peradeniya



Ms. Thulari Ariyathilake  
Faculty of Medical Sciences,  
University of Sri Jayawardenapura

## ***PRE-CONFERENCE ACTIVITIES***

## COURSE ON ZEBRAFISH AS AN ALTERNATIVE MODEL



**Course on**  
**"Zebrafish as an alternative model"**

Organized by the  
Sri Lanka Association for Laboratory Animal Science (SLALAS)  
in collaboration with the  
Medical Research Institute (MRI),  
Sri Lanka College of Veterinary Surgeons (SLCVS),  
3Rs Centre in LAS in Sri Lanka &  
Society for Alternatives to Animal Testing in Sri Lanka (SAAT-SL)

**Online Lectures**  
16<sup>th</sup> December 2023 (Saturday)  
From 8.30 a.m. – 4.00 p.m.

**Practical Session at MRI**  
17<sup>th</sup> December 2023 (Sunday)  
From 9.30 a.m. – 5.00 p.m.

**Workshop Fee**  
Rs. 5000/=

**Certificate will be issued.**

The maximum number of participants is 25.

Registration Link:  
[https://docs.google.com/forms/d/e/1FAIpQLSc3PthRH64F9Qo0vUjDCvelft3JlRThMcUQhSu7aqe8WDeA/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSc3PthRH64F9Qo0vUjDCvelft3JlRThMcUQhSu7aqe8WDeA/viewform?usp=sf_link)

Deadline for Registration: 1<sup>st</sup> December 2023

A/C Name : Sri Lanka Association for Laboratory Animal Science  
A/C No. : 167-2-001-2-0007451  
Bank. : People's Bank (Town Hall Branch)

Further details : slalasc@gmail.com

## WORKSHOP ON GENETIC & MICROBIOLOGICAL MONITORING



**Pre-Conference Workshop on**  
**Microbiological Monitoring and Genetic Monitoring**  
**of Laboratory Animals**

Organized by the  
Sri Lanka Association for Laboratory Animal Science (SLALAS)  
in collaboration with the  
Medical Research Institute (MRI), Sri Lanka

**5<sup>th</sup> January 2024**  
(Online Lectures)

**6<sup>th</sup> January 2024**  
(Onsite Practical Session at MRI)

**Registration fee: Rs. 5000.00**  
**Limited to 20 participants**

Link for registration:  
[https://docs.google.com/forms/d/e/1FAIpQLSc3PthRH64F9Qo0vUjDCvelft3JlRThMcUQhSu7aqe8WDeA/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSc3PthRH64F9Qo0vUjDCvelft3JlRThMcUQhSu7aqe8WDeA/viewform?usp=sf_link)

Registration Closing date: 1<sup>st</sup> January 2024

A/C Name : Sri Lanka Association for Laboratory Animal Science  
A/C No. : 167-2-001-2-0007451  
Bank. : People's Bank (Town Hall Branch)

Further details : slalasc@gmail.com

## WORKSHOP ON SYSTEMATIC REVIEW & META-ANALYSIS



**Pre-Conference Workshop on**  
**"Systematic Review and Meta-analysis"**

Organized by the  
Sri Lanka Association for Laboratory Animal Science (SLALAS)  
in collaboration with  
Department of Physiology, Faculty of Medicine, University of Colombo  
& Centre for Research Development and Innovation, University of Colombo

**12<sup>th</sup> January 2024**

Venue: Department of Physiology, Level 6, UCFM Tower, Faculty of Medicine, University of Colombo, Colombo 08

**Registration fee: Rs. 5000.00**  
**Limited to 20 participants**

Registration Link: [https://docs.google.com/forms/d/e/1FAIpQLSenHX6yhcQTBIMjrk8off\\_aqmvMeZVd6vuzohP5aBeceNg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSenHX6yhcQTBIMjrk8off_aqmvMeZVd6vuzohP5aBeceNg/viewform?usp=sf_link)

Registration Closing date: 4<sup>th</sup> January 2024

A/C Name : Sri Lanka Association for Laboratory Animal Science  
A/C No. : 167-2-001-2-0007451  
Bank. : People's Bank (Town Hall Branch)

Further details : slalasc@gmail.com

## PRESIDENTIAL ADDRESS OF THE 10<sup>TH</sup> ANNUAL SCIENTIFIC SESSIONS & INTERNATIONAL CONFERENCE

### A Voice for the Voiceless: Banning Animal Testing in the Cosmetic Industry



**Dr. Kalpani Ratnayake**

Head of the Department/ Senior Lecturer  
Department of Cosmetic Sciences,  
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Animals have been used in experiments throughout history to improve our understanding of anatomy and pathology. However, animal testing only became significant in the twentieth century (Pound and Bracken, 2014). To assess the safety of developing new medicines and certain other products such as cosmetics, animal experiments are extensively utilized in today's world.

According to the definition by the Federal Food, Drug, and Cosmetic Act (FD&C Act), cosmetics are "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance". Included in this definition are products such as skin moisturizers, perfumes, lipsticks, fingernail polishes, eye and facial makeup preparations, shampoos, permanent waves, hair colours, toothpaste, and deodorants, as well as any material intended for use as a component of a cosmetic product. However, depending on where we are in the world, we will get a different version of what is considered a cosmetic. For example, although deodorant is labelled as a cosmetic in the European Union, it is labelled as a drug in Australia. Further, it is considered as a combination of a drug and cosmetic in the United States (Villalobos *et al.*, 2014).

The research has shown that there are certain harmful chemicals present in cosmetic products. Formaldehyde, Parabens, Fragrance, Phthalates, Ethoxylated Compounds, and Heavy metals such as lead, beryllium, thallium, cadmium, and arsenic are some examples of harmful substances in cosmetic products. According to Villalobos *et al.* (2014), among the tested 49 different makeup products, 96% contained lead and 90% contained beryllium. It was 61% for thallium, 51% for cadmium, and 20% for arsenic. Because of these harmful chemicals cosmetic products can cause topical toxicity such as skin irritation or sensitization and systemic toxicity. Hence, before the sale and marketing of cosmetic products, manufacturers and distributors must ensure they are safe for use by humans. There is a legal obligation to fulfill in terms of adherence to certain safety and toxicity regulations.

Although the practice of using animals for scientific purposes, dates back to Ancient Greece, it was mostly commonly done for medicinal purposes. It wasn't until the early 1900s that cosmetic animal testing began to spread widely. This was mostly caused by the 1938 Federal Food, Drug, and Cosmetic Act, which was passed by the US Food and Drug Administration (FDA) and required cosmetic animal testing for beauty goods. Many factors prompted the legislation, but one renowned case is that of Lash Lure. Lash-Lure, a substance that contains paraphenylenediamine, a coal-tar derivative, was used to dye eyebrows and eyelashes. This might lead to allergic blepharitis, toxic keratoconjunctivitis, and secondary bacterial keratitis. This unfortunate patient experienced a severe response that eventually progressed to bilateral keratitis. Hence, due to the presence of untested paraphenylenediamine in the mascara, numerous ladies in



the 1930s lost their vision after using it (Wilhelmus, 2001). In response to this incident, it was identified the mandatory to test cosmetic products.

After the United States Food, Drug & Cosmetic Act was signed into law in 1938, it required some safety substantiation of cosmetic products. This compels companies to begin testing their products on animals. In 1944, the Draize test was created by toxicologists John H. Draize and Jacob M. Spines to identify cosmetics that were safe for skin and eyes. In the Draize test, the test material is applied to the rabbits' eyes. Painful inflammation and serious corrosion of the eyes may result from the substance, depending on its type and dosage (Draize, Woodard and Calvery, 1944). New Zealand white rabbits were the most frequently used animal species for the Draize test because of their large eyes with clearly defined anatomy and physiology, ease of handling, availability, and affordability.

In addition to the Draize test, there are certain other animal tests to evaluate skin sensitization such as the Magnusson Kligman Guinea Pig Maximization Test (M&K test), the Buehler test, and the Local Lymph Node test (LLNA test).

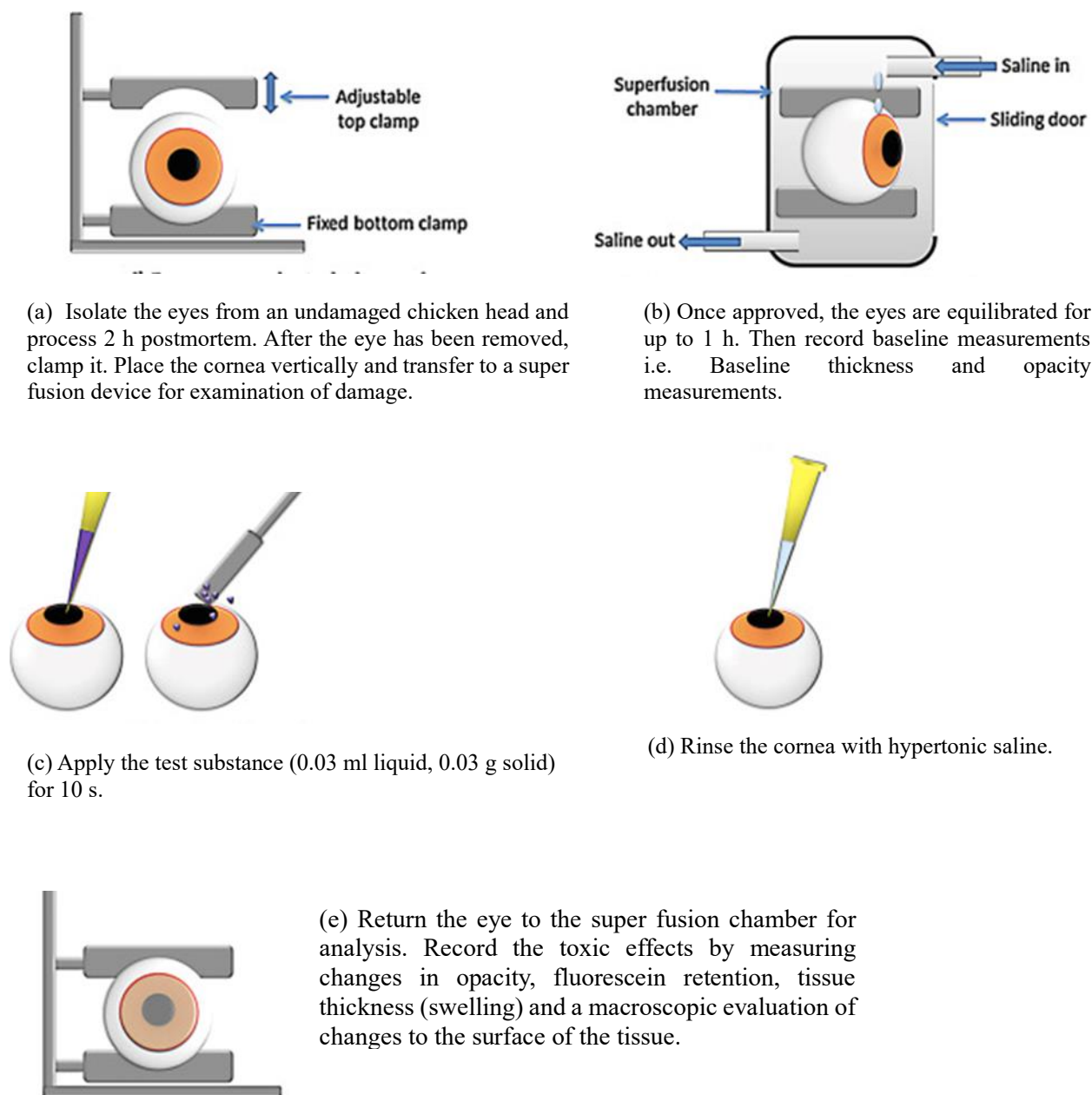
Although, in the past, the safety and toxicity of cosmetic products and their ingredients were mainly tested on animals, in recent years this has changed. Animals are no longer the main means for cosmetic testing due to ethical, efficiency, and economic reasons. Nowadays, cosmetic testing on animals has been banned in many countries. There have been calls to stop cosmetic testing on animals for several years, and as technology develops the use of alternative models has become possible. In 2004, the European Union (EU) was able to pass an official ban on animal testing on finished products. In 2009, the EU enforced a ban on animal testing of cosmetic ingredients and the marketing of animal-tested finished products. However, animal testing was still allowed in cases of repeated-dose toxicity, toxicokinetic, and reproductive toxicity. Finally, the European Union (EU), completely banned testing cosmetics and their ingredients on animals and officially put a sales ban on all cosmetics tested on animals since March 2013. Consequently, cosmetic products that have been tested on animals may not be placed on the market, even when the tests were carried out in a country outside the EU. In 2022, 42 countries worldwide have banned or restricted cosmetic animal testing, all 27 countries in the EU, Australia, Colombia, Iceland, India, Israel, Mexico, New Zealand, Norway, South Korea, Switzerland, Taiwan, Turkey, and the United Kingdom.

Further, there are certain fighters for animal rights such as the Leaping Bunny Program, People for the Ethical Treatment of Animals (PETA) and Cruelty-Free International are raising their voice against the use of animals in cosmetic testing. Those who oppose the use of animal testing for cosmetics believe it is outrageous and cruel to use animal life for the simple reason of making humans look better, and that the benefits to human beings do not validate the harm done to animals.

The Leaping Bunny Program is mainly associated with products from North America. It is recognized globally as the most reliable way of shopping cruelty-free. Each certified company has to maintain the Leaping Bunny Standard and annually renew their membership. The Leaping Bunny Logo is the only internationally recognized symbol guaranteeing consumers that no new animal tests were used in the development of any product displaying it. The Logo can be seen on packaging, advertising, and websites for cosmetics and household products around the world. PETA is one of the largest international animal rights organizations. Their focus is on opposing speciesism, defined as a human-supremacist worldview. They target laboratories, the food industry, the clothing trade, and the entertainment industry. These areas hold the largest concentration of suffering animals. Another organization dedicated to cruelty-free practices is Cruelty-Free International. They focus more on overall animal experimentation. Their goal is to eliminate cruel practices worldwide through investigations, petitions, and support for better science.

Currently, there are several alternative techniques available for animal studies which used previously for the testing of cosmetics. The eye irritation test or Draize test is now replaced by certain alternative tests such as ocular organotypic models and non-ocular organotypic models.

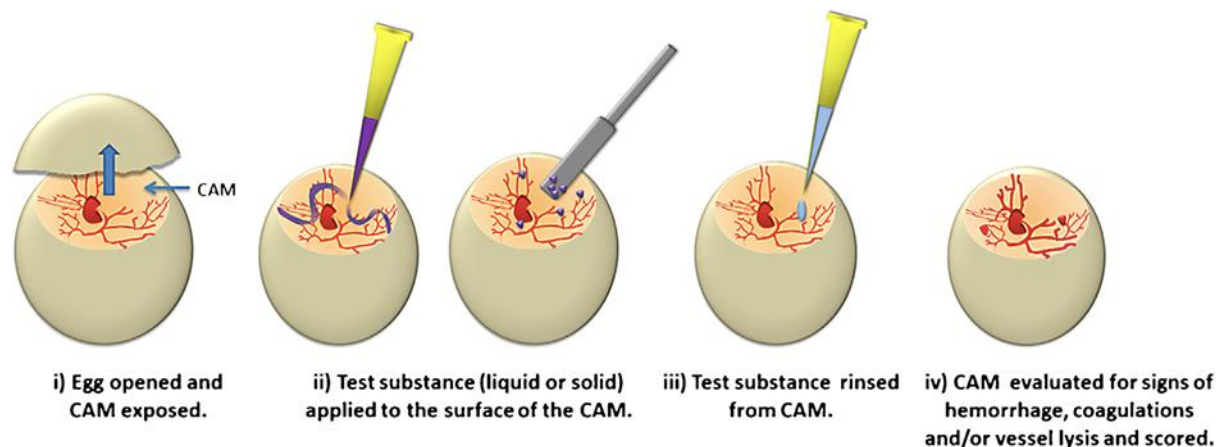
The ocular organotypic models are also known as enucleated eye tests (EET). It was first introduced by Burton *et al.* (1981) using isolated rabbit eyes (IRE) from animals used for other research purposes, or those that had been sacrificed commercially as a food source. Slaughterhouse waste has been extensively investigated as a substitute tissue source for EETs. Chicken enucleated eye tests (CEET), also known as the isolated chicken eye (ICE) test are widely accepted to be a reliable and accurate slaughterhouse tissue for assessing the eye irritation potential of test materials. Further, Bovine or porcine corneas are often used. The steps of chicken enucleated eye test are as follows (Figure 1).



**Figure 1: Schematic representation of the chicken enucleated eye test (CEET), which is based upon the isolated rabbit eye (IRE) protocol (Wilson, Ahearne and Hopkinson, 2015).**

The chorioallantoic membrane vascular assay (CAMVA) is an example of a Non-ocular organotypic models. It is also known as the Hen's egg test (HET), or Hühner-embryonal test on CAM (HET-CAM), or simply CAM assay. CAM is the vascularized respiratory membrane found within the membrane of a fertilized chicken egg, with a vasculature and inflammatory process similar to the conjunctival tissue of rabbit's eyes. The test is used to provide qualitative information on the potential effects occurring in the

conjunctiva following exposure to a substance, whilst evaluation of coagulation can be used to reflect potential corneal damage. Most protocols observe the time in seconds whereby a substance causes haemorrhage, vasoconstriction and/or coagulation that is measured, scored and then categorized (Figure 2). Other endpoints include injection (mild haemorrhage), vasoconstriction, dilation, and lysis (disintegration of vessels).



**Figure 2. Schematic representation of the chorioallantoic membrane vascular assay (Wilson, Ahearne and Hopkinson, 2015).**

Further, artificial skins are now available as replacement techniques for skin absorption tests or toxicokinetic testings. Artificial skins are also called laboratory skin or reconstructed tissue and they are any material used to replace (permanently or temporarily) or to mimic the dermal and epidermal layers of the skin. *Scientists have created human skin in a petri dish, which could be used as an alternative to animal testing in cosmetics.* SkinEthic, EpiDerm and EpiSkin are some of the examples of commercially available artificial skin nowadays. The EpiSkin human epidermis model can be used to assess the skin irritation potential of chemicals and there are a number of product lines such as reconstructed human epidermis with melanocytes, reconstructed human dermis and epidermis: Full thickness model, reconstructed human corneal epithelium and reconstructed human mucosa: Oral, Gingival & Vaginal epithelium.

Further, bioprinting of human skin tissue models for cosmetic testing is also identified as a replacement for animal testing procedures. This technique can be used for pluripotent stem cell-derived skin cells which would help develop skin models with different skin types (Asian, Caucasian, etc.), character (dry, oily, etc.), or other specific skin types depending on the intended use of the cosmetic. Also, the development of skin-on-chip technology is promising for assessing the toxicity of substances contained in cosmetics, particularly for repeated dose toxicity. Likewise, as nowadays there are several advanced alternatives for animal testing for cosmetics, the cosmetic industry can assess the safety of their products, by using an alternative instead of using laboratory animals.

Like us animals also feel pain hunger thirst in a basic manner. They suffer just like we do. They feel lonely and sad just like we do. They want to live just like we do. Although, we can say how hurt we are, animals can't tell how much they hurt. So as human beings it is our responsibility to make a voice for these voiceless living creatures.

## References

Burton, A.B.G., York, M., Lawrence, R.S. (1981) The in vitro assessment of severe eye irritants Food Cosmet. Toxicol., 19:471-480

Draize, J.H., Woodard, G., Calvery, H.O. (1944) Methods for the study of irritation and toxicity of substances applied topically to the skin and mucous membranes, J. Pharmacol. Exp. Ther., 82: 377-390  
<https://crueltyfreesoul.com/animal-testing-banned-countries/>

“New Study Finds Major Toxins in Many Cosmetics” (2011). Retrieved from <http://articles.mercola.com/sites/articles/archive/2011/06/04/new-study-finds-major-toxins-in-many-cosmetics.aspx4>.

Pound P, Bracken MB. (2014) Is animal research sufficiently evidence-based to be a cornerstone of biomedical research? *BMJ*: 348: g3387.

Prinsen, M.K. (2006) The Draize eye test and in vitro alternatives; a left-handed marriage, *Toxicol. In-vitro*, 20: 78-81

Villalobos, A., Tenneriello, B., Koppisch, E. and Fagan, J. M. (2014) Cosmetic Testing on Animals Pushing the Humane Cosmetics Act (H.R.4148) both to Remove Harmful Ingredients from Cosmetics and Promote the Health and Welfare of Animals

Wilhelmus, K. R. (2001) The Draize Eye Test, *Survey of Ophthalmology*, 45 (6): 493-515.

Wilson, S. L., Ahearne, M., Hopkinson, A. (2015). An overview of current techniques for ocular toxicity testing Author links open overlay panel, *Toxicology*, 327: 32-46

***AWARDING HONORARY MEMBERSHIP  
OF SLALAS***

**Emeritus Professor Patricia V. Turner, *BSc, MS, DVM, DVSc, MRCVS, DACLAM, DABT, DECAWBM (AWSEL)***



Prof. Patricia Turner stands at the forefront of the intersection between veterinary medicine, animal welfare, and laboratory science, making profound contributions in her role as Corporate Vice-President, Global Animal Welfare for Charles River Laboratories.

As a distinguished laboratory animal veterinarian and pathologist, Prof. Turner's career has been marked by an unwavering commitment to advancing the welfare of animals used in research. In her current position, she serves as the driving force behind assessing welfare risks and shaping global animal welfare policies for Charles River Laboratories, a leading company in the field. Her responsibilities extend to the development of comprehensive training programs that ensure the ethical treatment of animals in laboratory settings.

Prof. Turner's academic journey is equally impressive. Holding the esteemed title of University Professor Emerita at the University of Guelph, she previously served as a professor and program leader of laboratory animal science in the Department of Pathobiology. Her research group, characterized by its dedication to excellence, delves into critical aspects of animal welfare, with a focus on refining pain detection and mitigation, optimizing euthanasia practices, and enhancing research animal behaviour management programs.

Beyond her corporate and academic roles, Prof. Turner is recognized as a leader in the global veterinary community. Currently serving as the Vice-President of the American College of Laboratory Animal Medicine (ACLAM) and the Immediate Past-President of the World Veterinary Association, she continues to shape the trajectory of her field at an international level.

Prof. Turner's influence extends beyond the laboratory and into the realm of literature. An accomplished author and editor, she has contributed significantly to the academic discourse on animal welfare and ethics, laboratory animal science, and small mammal pathology. Her extensive body of work reflects not only her expertise but also her commitment to fostering a compassionate and ethical approach to research involving animals.

In every facet of her multifaceted career, Prof. Patricia Turner emerges as a pioneering figure, dedicated to elevating the standards of animal welfare in research, education, and policy. Her tireless efforts and leadership serve as an inspiration to those who share her passion for responsible and humane treatment of animals in the scientific community.

**Professor Cynthia A. Pekow, DVM, DACLAM, CPIA**



Prof. Cynthia Pekow has been involved as a volunteer since 2004 at the national level with the American Association for Laboratory Animal Science (AALAS) on many levels. Initially, she was involved with committee work, then participated on the Board of Directors for two years, and was part of the Executive Committee from 2002-2004, and President in 2003. From 2011-2023 she has been the appointed as a representative from AALAS to the International Council for Laboratory Animal Science (ICLAS).

Further, she has been active as a volunteer with the Northwest Association for Biomedical Research from 1998-2023 as a Board member and committee member and continue to volunteer assisting with planning national meetings for training research animal oversight committees.

Prof. Pekow as a volunteer with the American College of Laboratory Animal Medicine, has served on various committees since 1998.

Prof. Cynthia Pekow has actively volunteered with AAALAC International, from 2009 – present day. In 2023 she served as the Chair of the Board of Directors. She has worked as an ad hoc site visitor since 2009 both in the US and internationally.

As a Member Organization Delegate from AALAS, Prof. Cynthia has been an active volunteer with the Governing Board of the International Council for Laboratory Animal Science (ICLAS) since 2011. She has served as Chair of the Education Committee from 2011-2015, and Co-Chair of the Americas Regional Committee. From 2013-19 she was the Secretary General, and she has continued as a representative to the AAALAC International Board of Trustees. Prof. Cynthia Pekow has served as the President for a 4-year term from 2019-23.

She has volunteered for Public Health and Community Service agencies both locally and internationally:  
2007-9, Amigos de las Americas, Foundation Advisory Council (Youth-led public health projects in Latin America)  
2006-23, Faith in Practice, 18 years with a medical team providing healthcare in rural Guatemala for one week each year.  
2009-2012, Habitat for Humanity, Women Build construction-crew member  
2021, vaccinator at COVID public vaccination clinics in the US

Since 1991, as a volunteer she has provided laboratory animal science courses, workshops, classes, seminars, and keynote addresses in-person in 17 nations around the globe. Thanks to the ability to provide live classes and recorded classes on-line, she has additionally participated in courses in dozens of other nations around the globe. Prof. Cynthia Pekow has been an author or co-author on articles on laboratory animal science topics in peer-reviewed journals and book chapters, both in the US and internationally.



**Dr. Suresh Poosala, DVM, MS, PhD**



Dr. Suresh Poosala, a distinguished figure in the realm of Laboratory Animal Science (LAS), embarked on his journey in 2008 when he returned to India. His impact has been transformative, marking numerous milestones in the field. Dr. Poosala stands as a trailblazer, leaving an indelible mark on the landscape of LAS in India and beyond.

As the Head of Veterinary Sciences at BMS, Dr. Suresh Poosala played a pivotal role in the establishment of several cutting-edge laboratory animal facilities. His visionary leadership was instrumental in revolutionizing lab animal sourcing, advocating for clean and high-quality animals in research. In a groundbreaking move, he engaged with Class A breeders, forging partnerships that ensured the availability of pristine animals since 2009.

Dr. Poosala's commitment to advancing the field is evident in his extensive research endeavors. Through sentinel surveys, he authored three influential lab animal health status papers that laid the foundation for testing protocols, testing companies, and industry standards. His dedication extended to shaping global benchmarks as he guided and implemented AAALAC standards, earning him the distinction of becoming the first council member on AAALAC International from India.

Under his leadership, BMS Syngene witnessed a surge in highly qualified technicians with AALAS certifications. Dr. Poosala's persuasive efforts convinced AALAS to recognize and certify these technicians, ensuring a skilled workforce in the LAS domain.

Not content with these accomplishments, Dr. Poosala extended his influence beyond organizational boundaries. He assembled a team of key veterinarians and leaders in LAS, fostering a community of expertise that included notable individuals such as Sakthi, Jayesh, Venkat, and Kaveri.

His commitment to knowledge dissemination was evident through on-site workshops, annual LASA meetings, and AFLAS events hosted during his tenure. Dr. Poosala set a benchmark for meeting venues and raised substantial funds for LASA through strategic sponsorships. One of his remarkable achievements was raising 30-40 L during a LASA meeting, a feat unprecedented in previous conferences.

Dr. Poosala's generosity extended to sponsoring numerous LASA events and bringing in renowned speakers, elevating the standards of LASA gatherings from 2009 to 2016. His invaluable insights guided import-export panels of lab animals, offering advice to airlines and India customs.

Engaging with government committees, Dr. Poosala directed funds to institutions like THSTI, NIAB, and ILS, playing a crucial role in the formation of LAS facilities. In his roles as Vice President and LASA associate editor, he continued his commitment to fundraising and furthering LAS initiatives.



A visionary and advocate for ethical research practices, Dr. Poosala initiated the first 3R's conference in 2021, demonstrating his commitment to humane research. He brought together international speakers for a hybrid event, actively promoting advanced animal models and alternatives to address the principles of Replacement, Reduction, and Refinement.

In his relentless pursuit of excellence, Dr. Poosala focused on education, teaching LAS and Alternatives to institutions like SLLAS, SLAAS, and LASA. His contributions extended beyond borders, with a significant impact on Sri Lanka, where he played a crucial role in LAS and Alternatives courses, workshops, and conferences.

In his final years, Dr. Poosala's legacy includes advising and forming several Contract Research Organizations (CROs), leaving an enduring impact on the LAS landscape. Dr. Suresh Poosala's tireless dedication and leadership have not only shaped the trajectory of LAS in India but have also left an indomitable mark on the global scientific community.

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President and the Executive Committee wish to thank

The Chief Guest and a keynote speaker – Prof. Patricia V. Turner, Corporate Vice President, Global Animal Welfare, Charles River and University Professor Emerita, University of Guelph, Guelph, ON, Canada

The Guest of Honour and a keynote speaker – Prof. Cynthia A. Pekow, Clinical Assistant Professor Chief of the Veterinary Medical Unit, University of Washington, USA

The Guest of Honour and keynote speaker – Prof. Vera Baumans, Emeritus Professor in Laboratory Animal Science, Utrecht University, The Netherlands

The Guest Speakers - Dr. Suresh Poosala, Founder; Acasta Health., & amp; Oncoseek Bio Pvt. Ltd. and Founder Chair, 3R Advances International Conference, India, Dr. Patrick Sharp; Executive Director, Department of Animal Research Services/ Executive Director, Veterinary Services, University of California, Merced, USA, Prof. Arvind Ingle; Scientific Officer 'H' & Officer-in-Charge, Laboratory Animal Facility, ACTREC, Navi Mumbai, MS, India, Prof. Cholawat Pacharinsak, Director of Veterinary Anaesthesia, Analgesia and Surgery, Department of Comparative Medicine, Stanford University, USA, and Dr. M.G. Thammitiyagodage; Head of the section, Department of Laboratory Animal Science, Medical Research Institute, Sri Lanka

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Chairpersons and moderators of the technical sessions

Panel of Judges of the oral and poster presentations

The Panel of abstract reviewers

Panels of evaluators for the best journal publication and competitions

Panel of Technical officers in the roundtable discussion

Resource persons of pre-conference activities

Our collaborators for the pre-conference activities; Medical Research Institute, Sri Lanka College of Veterinary Surgeons, Society for Alternatives to Animal Testing in Sri Lanka, Dept. of Physiology, and the Centre for Research, Development and Innovation, Faculty of Medicine, University of Colombo

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