



**Proceedings of
XXII Annual Conference of
Indian Society of Veterinary Pharmacology and Toxicology
and
International Symposium
on
"New Horizons in Veterinary Pharmacology and Toxicology
Research: Way Forward to Augment Livestock Health and
Production"**

02-04 NOVEMBER, 2022

Namakkal, Tamil Nadu

Compiled by

Dr. P. Sankar

Dr. P. Mekala

Dr. A. Jagadeeswaran

Dr. P. Vikrama Chakravarthi

Dr. R. Yogeswari

Dr. M. Sakthi Priya

Dr. A. Arivuchelvan

Organized by

Department of Veterinary Pharmacology and Toxicology
Veterinary College and Research Institute,
Namakkal, Tamil Nadu, India

Tamil Nadu Veterinary and Animal Sciences University
Chennai - 600 051

Title : Proceedings of XXII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology and International symposium on “New Horizons in Veterinary Pharmacology and Toxicology Research : Way Forward to Augment Livestock Health and Production”

Compiled by : Dr. P. Sankar, Dr. P. Mekala, Dr. A. Jagadeeswaran, Dr. P. Vikrama Chakravarthi, Dr. R. Yogeswari, Dr. M. Sakthi Priya, Dr. A. Arivuchelvan

Printed and Published by : Department of Veterinary Pharmacology and Toxicology Veterinary College and Research Institute, Namakkal - 637002, Tamil Nadu, India

Edition : First

ISBN : 978-93-5759-873-6

Copy Right © : 2022 VPT, VCRI, Namakkal

CONTENTS

S.No.	Title	Page No.
1.	Inaugural Function	5
2.	Orations	7
3.	Technical Session I	8
4.	Technical Session II	9
5.	Technical Session III	10
6.	Technical Session IV	11
7.	Award Session	13
8.	Technical Session V	15
9.	Technical Session VI	16
10.	Technical Session VII	17
11.	Technical Session VIII	18
12.	Technical Session IX	19
13.	Technical Session X	20
14.	Poster Session	21
15.	Technical Session XI	22
16.	Technical Session XII	23
17.	Technical Session XIII	25
18.	Valedictory function	26

**XXII Annual Conference of Indian Society of
Veterinary Pharmacology and Toxicology and International Symposium 2022**

ORGANIZING COMMITTEE

Chief Patron	
Dr. K.N. Selvakumar Vice Chancellor Tamil Nadu Veterinary and Animal Sciences University Chennai - 600 051	
Patron	Co - Patron
Dr. P. Tensingh Gnanaraj Registrar Tamil Nadu Veterinary and Animal Sciences University Chennai - 600 051	Dr. C. Soundararajan Director Central for Animal Health Studies Tamil Nadu Veterinary and Animal Sciences University Chennai - 600 051
Chairman and Convener	
Dr. M. Selvaraju Dean Veterinary College and Research Institute Namakkal - 637002	
Organizing Secretary	
Dr. A. Jagadeeswaran Professor and Head, Department of Veterinary Pharmacology & Toxicology Veterinary College and Research Institute Namakkal - 637002	
Co-organizing Secretaries	
Dr. A. Arivuchelvan Dr. M. J. Raja Dr. P. Vikrama Chakravarthi Dr. R. Yogeswari Dr. P. Sankar Dr. M. Sakthi Priya	
Treasurer	
Dr. P. Mekala	

INAUGURAL FUNCTION

The Department of Veterinary Pharmacology and Toxicology, VCRI, Namakkal organized the XXII Annual Conference of the Indian Society of Veterinary Pharmacology and Toxicology (ISVPT) and International Symposium on “New Horizons in Veterinary Pharmacology and Toxicology Research: Way Forward to Augment Livestock Health and Production” from 02.11.2022 to 04.11.2022. The conference and symposia were sponsored by the National Bank for Agriculture and Rural Development (NABARD), Chennai and thirty eight number of private companies. Inaugural function of the conference was organized on 02 November 2022 at 09.30 A.M. in the Open Air Auditorium, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India. **Dr. M. Selvaraju**, Chairman Organizing Committee and Dean, VCRI, Namakkal welcomed the dignitaries and gathered audience delegates and honoured the chief guests with momento and shawl. **Dr. K. N. Selvakumar**, Vice-Chancellor, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS) inaugurated the programme and delivered the presidential address. He emphasized the potential use of herbal remedies and their scientific validation in animal health care. **Dr. A. K. Srivastava**, Vice-Chancellor, Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan (DUVASU), Mathura, Uttar Pradesh delivered the special address. He stressed the forthcoming challenges before Pharmacologists working in different fields. He also emphasized that academia must play a pivotal role in veterinary drug development in view of emerging and reemerging animal diseases. He hoped that the annual conference and international symposium will provide an opportunity for pharmacologist. **Dr. A.M. Thaker**, President- ISVPT & Dean (Retired), College of Veterinary Science and Animal Husbandry, Anand delivered the society report and felicitation address. He emphasized on use of molecular techniques and cutting-edge technologies in drug development. **Dr. S. K. Bhavsar**, Hon. Executive Secretary-ISVPT HQ, Professor and Head, College of Veterinary Science and Animal Husbandry, Anand announced the names of the awardees and financial status of the society. **Dr. A. Arivuchelvan**, Co-organizing Secretary and Professor of Pharmacology and Toxicology, Veterinary College and Research Institute, Namakkal, proposed the vote of thanks at the end of the inaugural function. Several eminent personalities and

retired pharmacologists were present during the inaugural function. University Officers, Faculty and staff of various departments of the Institute graced the occasion. Besides dignitaries, delegates including PG and Ph.D. students from almost every nook and corner of India were present. The inaugural function was attended by more than three hundred scientists, teachers, students and representatives from Pharmaceutical and allied industries. The chief guest of the inaugural function of XXII annual conference released the Compendium and an android based application on “Veterinary Drug Information System” development by undergraduates students under guidance of pharmacology faculty of institute. Five scientists were awarded Fellow of ISVPT and seven scientists were awarded Associate Fellow of ISVPT on the occasion. The retired pharmacologist of TANUVAS were honoured by chief guest and distinguished guests. One hundred and eighty nine participants attended the conference. A cultural event was organized on 03.11.2023 evening at Open Air Auditorium, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India.

ORATIONS

CHELLAPA MEMORIAL ORATION

Chairman : Dr. A.M.C. Nair

Co-chairman : Dr. Pawan Kumar Verma

Rapporteur : Dr. Raseshkumar D. Varia

Prof. N. Punniamurthy, Consultant NDDDB – Animal Health Group, Trans-Disciplinary University, Bangalore, Former Prof. & Head, Ethnoveterinary Herbal Research Centre, Tamil Nadu Veterinary and Animal Sciences University, Tamil Nadu delivered lecture on “Translating Ethnoveterinary Medical Knowledge into Clinical Practice: A Bottom-up Approach” on 02.11.2022. Prof. Punniamurthy stated that the ultimate goal of ethnopharmacology should be to identify drugs to alleviate illness. He also highlighted that Ethnoveterinary medicine is now accepted globally as evidence - based practice for antimicrobial free livestock farming for clean milk, meat and egg production and can effectively counter antimicrobial resistance issue in the long run.

Dr. M. SABIR ORATION

Chairman : Dr. A.K. Srivastava

Co-chairman : Dr. V. Ranganathan

Rapporteur : Dr. K.A. Sadariya

Prof. Satish K Garg, Vice-Chancellor, Rajasthan University of Veterinary and Animal Sciences, Bikaner, India delivered Dr. M. Sabir Oration on “Insights about role of ion channels in regulation of sperm functions and mechanistic pathways of heavy metals-induced alterations in functional dynamics” on 03.11.2022 through online mode. He highlighted that heavy metals are common environmental contaminants of air, soil and ground water as well occur naturally on earth’s crust causing severe toxicity in human beings and animals. It has been considered to potentially affect sperm quality and their fertilization capacity. The major issues for future research in this area is to elucidate whether heavy metals interact with sperm ion channels and if they interact then which signaling pathways are involved in impairment of sperm functions. Overall, concerted scientific interventions and suitable manoeuvring strategies are warranted to preserve and improve overall fertility in males in view of ever growing serious global concerns due to environmental pollution.

TECHNICAL SESSION I

ETHNOPHARMACOLOGY

Chairperson	:	Dr. P. Sriram	
Co-Chairperson	:	Dr. T.U. Singh	
Rapporteur	:	Dr. R.D. Singh	
Date	:	02.11.2022	Time: 14.00-18.00
Venue	:	Open Air Auditorium, VCRI, Namakkal	

Two lead papers were listed in this session. The lead paper entitled "Pharmacological Perspectives of Ethnoveterinary Practices in Indian Scenario" was presented by Dr. N.B. Shridhar, Professor and Head, Department of Veterinary Pharmacology and Toxicology, Veterinary College, Shivamogga, Karnataka. He discussed major challenges of herbal medicine based on its phytochemical, biological, pre-clinical, and clinical investigations and IPR protection. He elaborated on Pharmacological perspectives of ethnoveterinary practice (EVP), necessity of pharmacovigilance in EVP, Toxicological perspectives and legal aspects of EVP in Indian scenario and possible ways to reduce toxic effects of herbal medicines in ethnoveterinary practice. He concluded that ethnoveterinary practice in Indian scenario with more evidence based and modern scientific research methods is accepted by all. In this session 25 research papers were listed, of which 19 research papers were presented with a major focus on indigenous drug development and scientific validation of herbal medicine. Most of the papers converged on protective effects of different plant extracts on various animal diseases.

Recommendations: Indigenous medicinal plants have enormous potential in the form of pharmacological activities. It is being used in the form of various extracts or crude powders alone or in combination of more plants. Further analysis about isolation and identification of active ingredients and evaluation of their pharmacological activity will enhance the therapeutic efficacy and cost effectiveness. So, we need in depth study on the development of the indigenous herbal based drugs for animal diseases. These presentations and discussions have ignited the minds of the young scientist to ponder upon further which has provided a platform to come out with good research projects. Following Scientists/ Teachers, Students and Field Veterinarian received the best oral presentation awards for the Technical session- I:

Faculty	1. Dr. R. Arunadevi 2. Dr. R. Poonguzhali 3. Dr. S. K. Bhavsar
Students	1. Dr. R. Arun Prasath 2. Dr. S. Sai Prathyusha
Field Veterinarian	1. Dr. S. Nagajothi 2. Dr. M. Periyannan

TECHNICAL SESSION II

TOXICOLOGY OF XENOBIOTICS

Chairperson	:	Dr. K.V.S. Narayana Raju	
Co-Chairperson	:	Dr. S. Kalpana	
Rapporteur	:	Dr. K. Kannan	
Date	:	02.11.2022	Time: 14.00-18.00
Venue	:	Dr. R. Ramamurthi Hall, VCRI, Namakkal	

The lead paper entitled "Toxicology of Xenobiotics" was presented by **Dr. R.K. Shakthi Devan**, Head - Veterinary Science & Comparative Medicine Safety Assessment, Syngene International Ltd, Bangalore. He enlightened on the various toxicological tests and regulatory guidelines used to screen the xenobiotics. He emphasized on application of guidelines during drug discovery and developmental phase study of agrochemicals and environmental chemicals screening. -

In this session, a total of 10 research abstracts were presented. Seven faculty members and three students from various colleges presented their research findings. Under faculty category, topics such as effect of quercetin over lead induced toxic effect on pulmonary artery of goats, effect of inorganic arsenic on fertility parameters in ducks, aflatoxicosis induced pathological and apoptotic changes in the oviduct of layers, ameliorative effect of quercetin and catechin against arsenic and mancozeb induced testicular toxicity in rats, developmental toxicity study of *Andrographis paniculata* extract in rats, toxicity of cadmium, mercury, lead and arsenic in adult Zebra fish were discussed. Under student category; topics such as *in vitro* genotoxicity evaluation of indoxacarb and its amelioration with *Cassia fistula*, effect of nanocurcumin in alpha-amanitin toxicity in rats and Umbelliferone on cyclophosphamide induced testicular toxicity in mice were presented.

Recommendations: The recommendation goes by, in addition to using conventional toxicological techniques for screening the xenobiotic for drug development, emphasis has to be given to using the advance molecular technique for better and rapid drug development.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- II:

Faculty	<ol style="list-style-type: none">1. Dr. M. R. Srinivasan2. Dr. Pawan K Verma3. Dr. Urvesh D Patil
Students	<ol style="list-style-type: none">1. Dr. Matam Sri Deepthi2. Dr. Zarzoliani3. Khumtya Debarma

TECHNICAL SESSION III

EDUCATION IN VETERINARY PHARMACOLOGY AND TOXICOLOGY (PANEL DISCUSSION)

Chairperson	:	Dr. S. Ramesh	
Co-Chairperson	:	Dr. A.R. Nisha	
Rapporteur	:	Dr. A. Elamaran	
Date	:	02.11.2022	Time: 17.00-18.00
Venue	:	Dr. R. Richard Masillamoni Hall, VCRI, Namakkal	

A panel discussion on education aiming at fostering a common understanding of Veterinary Pharmacology and Toxicology among UG, PG and Ph.D., students was held. The session included 32 faculty members and 76 students from various colleges across India who engaged in an interactive brainstorming session.

The discussion primarily focused on the deficiencies in the MSVE 2016 syllabus pertaining to Veterinary Pharmacology and Toxicology of UG, PG & Ph.D., and suggestions to overcome these deficiencies. The recommendations made were:

- The professional year pattern of MSVE 2016 does not allow for sufficient time to teach the entire syllabus of pharmacology and toxicology in one year. Therefore, VPT should be offered for at least two years in a split manner.
- The pharmacology faculty in clinics should be allowed to handle clinical cases in the medicine section so that the knowledge of the concerned faculty can be well utilized in the clinics.
- In PG curricula, courses should focus more on application aspect rather than the oritical, such as experimental pharmacology, bioinformatics, and regulatory toxicology.
- The recommendations were submitted to the Chairman of ISVPT for forwarding to VCI and ICAR to improve the curriculum in the future.

This session provided a platform to discuss and address the lacunae and deficiencies in syllabus thereby how best it can be rectified by gathering inputs suggested by the participants to arrive at a meaningful conclusion and further requesting to take forward these recommendations to higher authorities.

TECHNICAL SESSION IV

SYMPOSIUM SESSION

Chairperson	:	Dr. A.M. Thaker	
Co-Chairperson	:	Dr. Dharendra Kumar	
Rapporteur	:	Dr. C. Vijayakumar	
Date	:	03.11.2022	Time: 09.00-11.30
Venue	:	Open Air Auditorium, VCRI, Namakkal	

Three lead papers were presented in the session.

First lead paper on Regulatory Pharmacology and Toxicology in Drug Development was presented by Dr. Shaji Theodore, Division of Pharmacology and Toxicology, Centre for Drug Evaluation and Research, United States Food and Drug Administration, Maryland, USA. A detailed presentation was given on role of Centre for Drug Evaluation and Research, United States Food and Drug Administration in safety and documentation of effective drugs for global population. He highlighted the functional activities of his center like applying for brand name, generic name, over the counter pharmaceutical preparations, and management of regulatory aspects for current Good Manufacturing Practice in pharmaceuticals, determining the specificity of medications that require a medical prescription, monitoring on advertising of approved medications, collection and analysis on safety data about drugs that are already on the market.

The second lead paper was on Current approaches in Drug Discovery and Preclinical Drug Development presented by Dr. Damodaran Annamalai, Biogen In, Massachusetts, USA. He the complexity in drug development, phases of drug development, investigational new drug application and clinical testing before marketing approval from the FDA. He also deliberated about each phase and different stages of drug development in-depth, on Discovery and Development, Preclinical Research, Clinical Development, FDA Review and FDA Post-Market Safety Monitoring. Finally, he concluded with an overall understanding of drug discovery and preclinical drug development with an aim to bring more efficient and safer treatments to the patients as quickly as possible after thorough medical evaluation.

Finally the third lead paper on LEAP₂ as a metabolic hormone in Humans and Mice was presented by Dr. Bharath K. Mani, Division of Hypothalamic Research,

UT Southwestern Medical Center, Dallas, Texas, USA. He expounded the liver-enriched antimicrobial peptide-2 (LEAP2), a recently characterized endogenous GHSR antagonist, blunts ghrelin action during obese states and postprandially. He also illustrated the changes in plasma LEAP2 and acyl-ghrelin due to fasting, eating, obesity, gastric bypass, gastrectomy, oral glucose administration, and type 1 diabetes mellitus using humans and mice. His findings suggest that plasma LEAP2 is regulated by metabolic status and its levels increased with body mass and blood glucose and decreased with fasting. Furthermore, electrophysiology studies showed that LEAP2 hyperpolarizes and prevents formation of acyl-ghrelin in neurons.

Conclusion:

Nonclinical testing of human drugs is conducted to assess the safety of compounds before human clinical trials and marketing of new drugs. Although there is no exact number and type of non-clinical studies required for safety assessments, as there is inherent flexibility for each new compound, the traditional approach is outlined in various FDA and ICH guidelines. Regarding Drug Discovery, it involves a number of processes like target identification, validation, hit identification, lead generation and optimization. Development on the other hand, includes optimization of chemical synthesis, formulation, pharmacological studies, toxicological studies, clinical trials, and end up with regulatory approval. Finally, Ghrelin is a multifaceted gut hormone which activates its receptor (growth hormone secretagogue receptor) that regulates food intake, body weight, and blood glucose level. LEAP2 as an endogenous antagonist of ghrelin above all gut related functions.

Recommendations:

Regulatory Pharmacology and Toxicology in Drug discovery and Drug Development are time-consuming, expensive and currently the industry / academia is under pressure owing to the extreme stringent regulatory requirements, environmental concerns, and reduced incomes due to patent expirations. These issues have had an adverse bearing on the new molecule identification and validation in various human diseases in recent years. Hence, there is a need for innovative approaches as well as increased collaboration between industry, academia and governmental research institutions with a common objective of constantly delivering quality medicines.

AWARD SESSION

Dr. V.V. RANADE YOUNG SCIENTIST AWARD

Chairperson	:	Dr. K.K. Sardar	
Co-Chairperson	:	Dr. P. Senthil Kumar	
Rapporteur	:	Dr. Vinay Kant	
Date	:	03.11.2022	Time: 10.15-11.15
Venue	:	Open Air Auditorium, VCRI, Namakkal	

Three participants competed in this award session and presented their research work.

1. K.S. Suhas: Triazophos-induced male reproductive toxicity in rats: amelioration by nano-quercetin
2. B. Rudresh Gowda: Effect of telmisartan on arsenic-induced (sub-chronic) perturbations in redox homeostasis, pro-inflammatory cascade and aortic dysfunction in Wistar rats
3. Borthakur Anurag: Pharmacokinetics of tiamulin and its residue levels in chicken when administered through different routes

Dr. K.S. Suhas, Ph.D., Scholar, Division of Pharmacology and Toxicology, IVRI, Izatnagar, Bareilly was declared the winner of the award.

DR. A.M. THAKER YOUNG SCIENTIST AWARD FOR WOMEN

Chairperson	:	Dr. N.B. Shridhar	
Co-Chairperson	:	Dr. K. Kanagarajadurai	
Rapporteur	:	Dr. Ashok Gaur	
Date	:	03.11.2022	Time: 11.15-12.15
Venue	:	Open Air Auditorium, VCRI, Namakkal	

This award is meant exclusively for women scientists. Five participants presented their research work on ethnoveterinary pharmacology.

1. P. Renushe Akshata: Prophylactic effect of vincamine against cerulein induced acute pancreatitis in male swiss albino mice by modulation of NF- κ B signaling pathway
2. R. Patel Madhuri: GC-MS characterization and wound healing activity of crude resin of *Shorea robusta Gaertn F.* plant in STZ-induced diabetic model

3. N. Nithyashree: Nanocurcumin - synthesis, characterization and evaluation of its utility in arsenic induced perturbations in central nervous system in Wistar rats.
4. Ayushi Chourasia: Cardioprotective potential of nano-quercetin against sodium fluoride induced cardiovascular toxicity in rats
5. M. Pavithra: The combined effect of vitamins in quinolone and tetracycline resistant *E.coli* isolated from poultry origin

Dr. Ayushi Chourasia, M.V.Sc., Department of Veterinary Pharmacology and Toxicology, Veterinary College and Research Institute, Namakkal won the award.

Dr. JAYVIR ANJARIA AWARD

Chairperson	: Dr. N. Prakash	
Co-Chairperson	: Dr. M.J. Raja	
Rapporteur	: Dr. Shraddha Nety	
Date	: 03.11.2022	Time: 12.15-13.15
Venue	: Open Air Auditorium, VCRI, Namakkal	

This award is meant to encourage young scientists to work in the field of herbal medicine and their ingredients. Four papers were received in this category, of which all the papers were presented.

1. Anshuk Sharma: Sesame Oil-Based *Shorea Robusta Gaertn F.* Resin Powder Topical Preparation Elevated Nrf-2 Expression and Enhanced Collagen Maturation Leading to Faster Healing of Full - Thickness Excisional Cutaneous WoundR.
2. R. Shankar: Phytochemical Screening and Antineoplastic Potential of Methanolic Extract of Leaves of *Magnolia Champaca* in MCF-7 Cell Line
3. N. Mahathma: Pharmacological Evaluation of Emu Oil with or without a Herb (*Cleome viscosa*) for Anti-Inflammatory Activity in Rats

Dr. R. Shankar, M.V.Sc., Department of Veterinary Pharmacology and Toxicology, College of Veterinary and Animal Sciences, Mannuthy, Kerala, won the award.

TECHNICAL SESSION V

MOLECULAR AND BIOCHEMICAL PHARMACOLOGY

Chairperson	:	Dr. K. Adilaxmamma	
Co-Chairperson	:	Dr. B.H. Pavithra	
Rapporteur	:	Dr. M. Sakthi Priya	
Date	:	03.11.2022	Time: 13.15-14.15
Venue	:	Dr. R. Richard Masillamoni Hall, VCRI, Namakkal	

One lead paper followed by a total of 7 research findings were discussed in the session. The role of Nitrovasodialtors signalling pathways in the cardiovascular disease was presented as a lead paper in which the discussion was on the specific receptors, the complex machinery facilitating appropriate responses to external stimuli and the role of signal transduction in the physiological and pathophysiological conditions. Understanding the mechanisms through which extracellular stimuli modify the functions of cells in the heart, gave valuable insights into how perturbations of signaling systems can maintain the cardiac health.

Two research findings were delivered on the assessment of niclosamide on the morphometric parameters in cardiac injury in mice, evaluation of oxidative stress parameters in the presence of niclosamide ethanolamine in cardiac fibrosis. The anthelmintic drug niclosamide regulating the multiple cellular signals and the antioxidant system to maintain the cardiac health was well understood. One more work highlighted about the role of antiparasitic drug niclosamide ethanolamine on cardiac injury markers and lipid profile in mice model and reported a reduction in the serum lipid profile in the mice. The effect of reduced glutathione on phenylephrine induced contractions and their modulation by biochanin was discussed and concluded that the altered vascular reactivity was restored by the non-enzymatic antioxidant.

The other work was on finding out the ameliorative effect of plumbagin on imiquimod induced psoriasis like skin inflammation in mice. The results revealed the ameliorative effect of plumbagin through up regulation of Nrf-2 and down - regulation of Nf-kB pathways was similar to standard drug cyclosporine.

The immunostimulant activities of clove oil in broiler was presented. The findings highlighted the beneficial effect of clove oil in terms of its improved response against cell mediated, humoral mediated immunity, improved biochemical profile and concluded that supplementation of clove oil in broiler feed would cause immunostimulant effect.

The presentation on regulation of leptin receptor subtypes and uterine response to leptin in three phases of pregnancy in a mouse model – a hormone secreted from

adipose tissue has a significant role during pregnancy and found to increase uterine contractions in the late pregnancy stage. It is found to be associated with obesity. The findings concluded that the ObRa isoform of leptin receptor could be a possible target to promote tocolytic response as well as finding out obRa selective agents to inhibit the action of leptin may prevent the premature abortion in humans and animals.

Recommendations: Based on the scientific deliberations in this session, it is strongly recommended to intensify the research on the general health with specific reference to cardiac health and also to promote herbal medicine as an alternative to overcome the effects of synthetic chemicals in terms of its adverse effects linking with a multi-disciplinary approach.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- V:

Faculty	1. Dr. Thaker Uttam Singh
Students	1. Dr. M. Naveena

TECHNICAL SESSION VI

ANIMAL WELFARE AND GLP / IN SILICO

Chairperson : Dr. K. Mini
 Co-Chairperson : Dr. Urvesh Patel
 Rapporteur : Dr. Venkata Rao
 Date : 03.11.2022 Time: 14.15-15.15
 Venue : Dr. R. Ramamurthi hall, VCRI, Namakkal

Two lead papers were presented in this session and was followed by 12 research findings. The lead paper entitled “Good Laboratory Practice (GLP) and Regulatory Toxicology for the Safety of Animal Welfare” was presented by Dr. C. Tamilselvan, Director of Research & Test Facility Management, Bioscience Research Foundation, Chennai, India. He stressed that the regulatory environment for animal welfare is dynamic and constantly influenced by a variety of factors, including changing regulatory requirements, emerging technologies like shifting perspectives on fundamental ideas like alternatives to animal use, attempting to set endpoints, and effective leadership, as well as economic concerns.

Second lead paper by Dr. B.V. Ravichandra, (Board certified Toxicologist – American and European), India Lead - Toxicology and Nonclinical Development Elanco Animal Health Inc. (USA) entitled “Regulatory toxicology in Nonclinical Drug Development and Risk Assessment” was delivered deciphering the role of regulatory

toxicologist in manufacturing and quality systems in a pharmaceutical industry during post marketing period as well to support worker safety and cross contamination of drug products using OEL and PDE was discussed. Detailed presentation was made on the multi-step regulatory process i.e., in conjunction with exposure assessment and other components, estimates of risk of an adverse health effect occurring as a consequence of ingesting, inhaling and/or absorbing one or more toxic substances.

Research papers included Zebfish model, Prediction of molecular interaction, Novel ligand based docking, *In Silico* elucidation and screening etc.

Recommendations: Based on the scientific discussion in this session, it is recommended that various alternative methods are available for reduction of animal usage for drug development process.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- V:

Faculty	<ol style="list-style-type: none"> 1. Dr. Vikrama Chakravarthi 2. Dr. K. kanagaraj Durai 3. R. Arunadevi
Students	<ol style="list-style-type: none"> 1. Dr. Arundhathy S Nair 2. Dr. Priyanka Menon Kunnel 3. Dr. M. Nivetha

TECHNICAL SESSION VII

PHARMACOKINETICS AND TOXICOKINETICS

Chairperson	:	Dr. G.S. Rao	
Co-Chairperson	:	Dr. Vijayakumar Matham	
Rapporteur	:	Dr. P. Sankar	
Date	:	03.11.2022	Time: 14.15-15.15
Venue	:	CAFT Lecture Hall, VCRI, Namakkal	

One lead paper followed by a total of 4 research findings was discussed in the session. The lead paper entitled “Veterinary Drug Bioequivalence” was presented by Dr. S.K. Bhavsar, Professor and Head, Department of Veterinary Pharmacology and Toxicology, College of Veterinary Science and Animal Husbandry, Kamdhenu University, Anand-388001, Gujarat, India. Importance of Bioequivalence (BE) studies in pharmacokinetics was presented in the lead paper. An insight on the role of bioequivalence tool for regulatory agencies, pharmaceutical industries and veterinary professionals to enable broad access to generic version of high quality veterinary brand drugs at lower cost was gained in the session.

Research work was presented on the chitosan encapsulated meloxicam nanoparticles for sustained drug delivery applications: synthesis, characterization, and

pharmacokinetics in Wistar Rats. Chitosan encapsulated meloxicam was found to have faster absorption and sustained release along with a significant improvement in the bioavailability of meloxicam.

Another research work revealed the oral pharmacokinetics of marbofloxacin in broiler chickens.

Recommendations: Based on the scientific discussion in this session, it is recommended that in addition to applying conventional pharmacokinetic parameters in determining the kinetic profiles of drugs more emphasis must be laid on studying the molecular biology of drug metabolizing enzymes in different species.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- VII:

Faculty	1. Dr. Y. Muralidhar
Students	1. Dr. V.J. Hari Sankar

TECHNICAL SESSION VIII

NUTRACEUTICALS

Chairperson : Dr. A. Arivuchelvan
Co-Chairperson : Dr. M.R. Srinivasan
Rapporteur : Dr. P. Vikrama Chakravarthi
Date : 03.11.2022 Time: 15.30-17.00
Venue : CAFT Lecture Hall, VCRI, Namakkal

There were 8 research papers presented under faculty category and 3 research papers presented under student category. Among the various papers the topics like,

Supplementation of Fenugreek Seeds to Lactating Mecheri Ewes,

Ameliorative Potential of Resveratrol in Lead-Induced Sub-Acute Toxicity in Male Wistar Rats

Effects of Shatavari (*Asparagus racemosus*) supplementation on growth and reproductive performance of Murrah Buffalo Heifers and

Cinnamomum cassia Bark: A Potential Antidiabetic Nutraceutical to Modulate Protein Tyrosine Phosphatase -1B were very well presented by the faculties and selected as best presentations.

Under the students category, the topics

Microbial Serine Protease Enzyme Supplementation on Protein Digestibility in Poultry and

Development and Characterization of Vacuum-Packed Herbal Paneer Prepared with *Piper betel* and Mentha Piperita Leaf Extract were selected as best presentations which were informative.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- VII:

Faculty	1. Dr. Suja Rani Sasidharan 2. Dr. Vinay Kant 3. Dr. N. Bharathy
Students	1. Dr. C. Sudharsan 2. Dr. L. Vijay

TECHNICAL SESSION IX

CLINICAL PHARMACOLOGY AND TOXICOLOGY

Chairperson : Dr. M. Selvaraju

Co-Chairperson : Dr. Atul Prakash

Rapporteur : Dr. K. Vijayakaran

Date : 03.11.2022

Time: 15.30-17.00

Venue : Dr. R. Richard Masillamoni Hall, VCRI, Namakkal

In Clinical Pharmacology and Toxicology session, two lead papers and a total of 10 research abstracts were presented. Dr. M. Selvaraju, Dean, VCRI, Namakkal presented a lead paper on “Role of hormones to increase the productivity in dairy cattle” and Dr. K.V.S. Narayanaraju, presented a lead paper on “Biosimilars: Pre-clinical toxicology program for regulatory compliance”.

One faculty member, one practicing veterinarian and eight students presented their research findings.

The papers presented are:

Faculty category: Effect of flumethrin on buffalo fly menace on cattle

Practicing veterinarian category: Medical termination of pregnancy with cloprostenol and its effect on postpartum uterine involution.

Student’s category:

- Evaluation of tiletamine-zolazepam anaesthetic combination for abdominal disorders in dogs
- Effect of propofol-ketamine anaesthesia in geriatric dogs
- CRI of butorphanol and ketamine in xylazine premedicated calves for umbilical herniorraphy, diazepam-ketamine induction and CRI of butorphanol and ketamine for tube cystotomy in calves

- Efficacy of oral Sarolaner for the treatment of sarcoptic mange in dogs
- Efficacy of PGF₂ alpha alone and in combination with dexamethasone for induction of parturition in cows.
- Comparative efficacy of propofol as intravenous bolus administration and its CRI for emergency caesarean section and effects of methylergometrine maleate on ultrasonographic and haemato biochemical changes in open cervix pyometra of canines were discussed.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- VII:

Faculty	1. Dr P. Anbarasi
Students	1. Dr. Boda Sai Kumar 2. Dr. R. Ruthrakumar 3. D. Dhivyabharathi
Field Veterinarian	1. M. Periyannan

TECHNICAL SESSION X

NANO-PHARMACOLOGY AND NANO-TOXICOLOGY

Chairperson	:	Dr. D.U. Bawankule	
Co-Chairperson	:	Dr. P. Mekala	
Rapporteur	:	Dr. R. Yogeswari	
Date	:	03.11.2022	Time: 15.30-17.00
Venue	:	Dr. R. Ramamurthi Hall, VCRI, Namakkal	

In the technical session, Nano-Pharmacology and Toxicology, two lead papers were presented. One was on 'Bio-kinetics of nano-materials from drug delivery and toxicity perspectives' delivered by Dr. N. Prakash, Dean, Bidar Veterinary College, Shivamoga, Karnataka. He emphasized that the important aspect of nano-pharmacology is the target specificity of nano-medicines and establishing safety and efficacy of the nano-sized materials. The second lead paper was on 'Polymeric Nano-particles for drug delivery' by Dr. K. Adilaxamma, Associate Dean, College of Veterinary Science, Sri Venkateswara Veterinary University, Tirupati, Andhra Pradesh, elaborating on how polymeric nanoparticles is being an important key tool to improve drug bioavailability and for specific delivery at the site of action.

Five abstracts were presented in this session

In vitro anthelmintic activity of curcumin and piperine nanoparticles in which

the presenter concluded that the curcumin nanoparticles exhibited good anthelmintic activity whereas nano piperine does not show any anthelmintic activity.

Chitosan encapsulated meloxicam nanoparticles (CEMNPs) ameliorates monosodium iodoacetate-induced osteoarthritis in the Wistar Rat model via suppression of PGE₂ and oxidative stress showing that CEMNPs has antiarthritic potential at one fifth of the dose of meloxicam.

Topical application of zinc oxide-Quercetin nano composite hydrogel accelerated wound healing in Rats in which the nano form of the drug significantly improved wound healing and can be a better biomaterial for clinical use in animals and human beings.

Hypo-cholesteremic effect on nano-chromium in broiler chickens was discussed and found to increase HDL synthesis.

Toxicity of Titanium dioxide nano particles in male Wistar rats was presented.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- VII:

Faculty	1. Dr. Vinay Kant 2. Dr. B.H. Pavithra 3. Dr. G.R. Shivaprasad
---------	--

POSTER SESSION

Chairperson	: Dr. S. Murugesan	
Co-Chairperson	: Dr. P. Sankar	
Rapporteur	: Dr. M. Jayanthi	
Date	: 04.11.2022	Time: 15.30-18.00
Venue	: Examination Hall, VCRI, Namakkal	

D. G. Kishor Kumar, T.G. Vageesh Patel, M. Naveena, D.D.V. Hanuman presented their posters under Molecular and Biochemical Pharmacology. K. Vijayakaran, Faaizah Afsheen, M. Sakthi Priya, R. Vigneshwar presented their poster under Animal welfare and GLP/*in silico*. S. Banupriya, M. Muthulakshmi, S. Ilavarasan, D. Niranjana, R. Sivaranjani presented their posters under nutraceuticals. P. Ponnusamy, P. Senthil kumar, Siddharth Thakur, K. Vaibhavi, T. Sathyabama, R. Sreeranjani discussed their respective posters under the topic nano-pharmacology and nano-toxicology.

From the 20 posters presented the following finest posters were selected.

1. Leptin-induced increase in transcription of BKCa channel subunits does not influence NS-1619-induced relaxation in late pregnant mouse uterus

2. D.G. Kishor kumar, Bency Elsa Johnson, S. Pavithra, Manjit Panigrahi, C.L. Madhu, M. Kesavan, Thakur Uttam Singh, Dinesh Kumar and Subashree Parida
3. An *In Silico* approach for screening of bioactive alkaloid vasicine as a promising toxin binder against ochratoxin A M. Sakthi Priya, A. Jagadeeswaran, M.J. Raja, A. Natarajan, P. Srinivasan and P.L. Sujatha
4. Development of poha and carrot incorporated chhana podo S. Banupriya and G. Kumaresan
5. Effect of incorporation of avocado pulp on the quality of chicken cutlet M. Muthulakshmi, G. Kumaresan, R. Rajkumar, L. Vijay and C. Nithishkumar
6. Preparation and characterization of polymeric chitosan and poly lactide-co-glycolic acid (PLGA) nanoparticles for biological study
7. P. Ponnusamy, K.Sukumar, A. Raja, S. Saravanan, P. Srinivasan, M. Prabhu and A. Thangavelu

From the session, the panelists discussed the significant points mentioned in the topics and selected the finest poster and the selected candidate list forwarded to the coordinator for further processes.

TECHNICAL SESSION XI

FOOD SAFETY / XENOBIOTIC RESIDUES

Chairperson	:	Dr. L. N. Mathuram
Co-Chairperson	:	Dr. Vinay Kant
Rapporteur	:	Dr. S. Sakthi Karthikeyan
Date	:	04.11.2022 Time: 09.15-10.15
Venue	:	Dr. R. Richard Masillamoni Hall, VCRI, Namakkal

The technical session on food safety/ xenobiotic residues was held on 04.11.02 at Dr. Richard Masilamoni conference hall VCRI Namakkal as part of the ISVPT conference. The session on food safety/ xenobiotic residues was headed by the chairperson Dr. L.N. Mathuram and the co-chair Dr. K. Adilaxmamma and rapporteur Dr. S. Sakthikarthikeyan. The session was attended by 79 number of participants including researchers, healthcare professionals, students, and industry representatives.

Dr. M. Sakthi Priya, discussed the influence of season on the occurrence of Aflatoxin B₁ in certain feed ingredients in India.

Dr. C. Kathirvelan presented their research about incidence of AflatoxinB₁ in livestock feed ingredients.

Dr. B.G.Goswam presented the evaluation of cinnamon oil feed supplementation on growth performance of broiler.

Dr.R.Yogeswari discussed about the Estimation of lead level in the soil of Namakkal district, Tamil Nadu.

Dr.N. Sri Balaj discussed their research about evaluation of toxic residue in cotton gin trash and its effect on Mecheri ewes fed as roughage feed supplement during pregnancy and lactation.

Dr. S. Kalpana presented her research on confirmatory analysis of nitrofurantol metabolite residues in chicken meat by tandem mass spectrometry.

Dr. L.Kalaiselvi presented the studies about monitoring of tetracycline residues in chicken meat from Tamil Nadu.

Dr. C . Nithishkumar presented the studies on effect on turmeric, cinnamon and clove powder combinations in reducing the microbial load in broiler chicken carcass.

The panelists discussed the importance of food safety and to give the safest food to the human by following the proper withdrawal time of drugs.

Overall, the technical session on food safety/ xenobiotic residues provided valuable insights into the current status of xenobiotic residues in the livestock products. The session highlighted the need for cheapest methods for detection of drug residues in the livestock and poultry products. The prize winners of this session were:

Faculty	1. Dr. S. Kalpana 2. Dr. R. Yogeswari 3. Dr. S.K. Bhavsar
---------	---

TECHNICAL SESSION XII

ANTIMICROBIALS AND ANTIMICROBIAL RESISTANCE

Chairperson : Dr. C. Soundararajan

Co-Chairperson : Dr. S. Suja Rani

Rapporteur : Dr. S. Ilavarasan

Date : 04.11.2022

Time: 09.15-10.45

Venue : Dr. R. Ramamurthi Hall, VCRI, Namakkal

The technical session on antimicrobial resistance was held on 04.11.02 at Masillamani conference hall VCRI Namakkal as part of the ISVPT conference. The session on Antimicrobials and antimicrobial resistance was headed by the chairperson Dr.C.S.Soundararajan and the co-chair Dr. Suja Rani and rapporteur Dr.S.Ilavarasan. 70 participants attended this session. The session began with keynote speech by

Dr. C. Soundararajan, Director Centre for Animal Health and Studies, TANUVAS, Chennai. He discussed on the current state of Anthelmintic Resistance in small ruminants and their control measures using anthelmintics. He discussed the ways to curb the anthelmintics resistance in small ruminants and concluded that Targeted selective treatment (TST) i.e., targeted deworming, integrated parasite management programs, biocontrol, ethno-veterinary (herbal preparations), development of vaccines against helminths and developing parasite resistant hosts (resistant breed) could be considered in future, to prevent selection of resistance against commonly used drugs within this setting.

Dr.G.S.Rao Professor and Head NTR college of Veterinary Sciences AndhraPradesh, discussed on Phenylpropanoids: a Promising Botanical Source of Antimicrobial Compounds for Combating Antimicrobial Resistance. He focused on that Phenylpropanoid based antimicrobials from botanical source are promising, in dealing with antimicrobial resistance as these compounds show antimicrobial activity alone and synergistically with existing antimicrobial agents. Following the keynote speeches presentations were given on various aspects of antimicrobial resistance.

D.K. Sharma, discussed the role antioxidant and antibacterial activity of aqua ethanolic Extract of Leaves of *Cassia fistula*.

D.K. Ramya presented their research on multiplex PCR based genotyping of ESBL producing Enterobacteriaceae (ESBL-E) isolates from the ruminant species.

Dr. S. Sakthikarthikeyan, discussed on antimicrobial resistance in Escherichia Coli from Healthy Japanese Quail, Desi Chicken, Broiler Birds of Tirunelveli.

Dr. G. Ravi Prakash discussed their research about Studies on antibacterial activity of enrofloxacin in the presence of Punganur cow urine against selected bacteria.

Students also presented their research works and revealed that companion animal like cat and dog carry multi-drug resistant *E. coli sp.* which can be transferred to human and can cause a public health hazard which may be avoided with judicious use of antibiotics and treated effectively with Cefixime based on the antibiotic sensitivity test. Another work highlighted that to assess the antibacterial activity of *Piper betle* leaf extracts using conventional disc/well diffusion and resazurin dye reduction assay against the common clinical isolates of mastitis and inferred that betle leaf extracts could be used as an effective antibacterial agent against mastitis milk pathogens.

The panelists discussed the need for a One Health approach to combat antimicrobial resistance, which involves collaboration between human health, animal health and

environmental sectors. They also discussed the importance of public education and awareness campaigns to reduce the misuse of antibiotics.

Following Scientists/ Teachers and Students received the best oral presentation awards for the technical session- VII:

Faculty	1. Dr. K. Ramya 2. Dr. G. Ravi Prakash 3. Dr. Rasesh D. Varia
Students	1. N. Divya Rajaselvi 2. Dr. M. Ajay Eswarr 3. M. Nivetha

TECHNICAL SESSION XIII

LEAD PAPER SESSION- NEUROPHARMACOLOGY, PHARMACOGENOMICS AND PHARMACOVIGILANCE

Chairperson	:	Dr. N. Punnamurthy	
Co-Chairperson	:	Dr. S. P. Preetha	
Rapporteur	:	Dr. L. Kalaiselvi	
Date	:	04.11.2022	Time: 11.00-12.45
Venue	:	Dr. R. Richard Masillamoni Hall, VCRI, Namakkal	

50 participants including academicians, researchers, postgraduate students. In this session, three lead papers were presented.

The session was attended by around 50 participants including academicians, researchers, postgraduates students and three lead papers were presented.

Dr. K. Srinivasan, NIPER, Mohali having vast experience in stroke research, discussed on Challenges and opportunities in stroke research, primarily catered towards the researchers. He gave valuable insights on challenges in stroke research, induction of stroke models, importance of stroke models with comorbidities. He briefed about commonly employed stroke models for research and he gave a detailed note on his experience in induction diabetic comorbidity stroke model.

Dr. K .G. Thirumurugan, Project Director, TRVPB, TANUVAS, Chennai, gave a comprehensive information about basics of pharmacogenomics, classification of pharmacogenes based on difference in drug responses and their importance in therapy. He also stressed the importance of personalised medicine. The speaker had thrown light on the international networks and consortium such as PharGKB, Clinical Pharmacogenetics Implementation Consortium, Clinical Genome Consortium which documents and provides information about clinically relevant pharmacogenes and their variants.

Dr. Jayes Nikumbhe gave a presentation on pharmacovigilance and its importance and work flow. The sources of adverse event reporting and adverse reaction flow in pharmacovigilance were well explained.

VALEDICTORY FUNCTION

Date: 04.11.2022

Time: 12.00-14.00

Venue: Open air Auditorium, VCRI, Namakkal.

Valedictory function of the XXII Annual Conference of the Indian Society of Veterinary Pharmacology and Toxicology (ISVPT) and International Symposium on “New Horizons in Veterinary Pharmacology and Toxicology Research: Way Forward to Augment Livestock Health and Production” was held on 04 November 2022 at 12.00 noon in the Open Air Auditorium, College of Veterinary Science, Veterinary College and Research Institute, Namakkal, Tamil Nadu, India.

Dr. A. Arivuchelvan, Co-organizing Secretary and Professor, Veterinary College and Research Institute, Namakkal welcomed the dignitaries and gathered delegates and honoured the chief guests.

Dr. A.M. Thaker, President- ISVPT & Dean (Retired), College of Veterinary Science and Animal Husbandry, Anand presented his opening remarks regarding technical sessions of the conference.

Dr. P. Vikrama Chakravarthi, Co-organizing Secretary and Assistant Professor, Veterinary College and Research Institute, Namakkal presented report of the oration and various technical sessions along with recommendations. He also informed that three key note papers on important topics related to the theme of International Symposium were presented by eminent scientists. A total of thirteen technical sessions and three poster sessions were arranged during the three day conference. Fifteen budding scientists participated for award sessions.

Dr. S. K. Bhavsar, Hon. Executive Secretary-ISVPT HQ, Professor and Head, College of Veterinary Science and Animal Husbandry, Anand announced the names of various award winners. **Dr. C. Soundararajan**, Director, Center for Animal Health Studies, Tamil Nadu Veterinary and Animal Sciences University consented to be the chief guest and delivered the presidential address and distributed the awards to the winners.

Dr. P. Mekala, Treasurer and Assistant Professor, Department of Veterinary Pharmacology and Taxicology Veterinary College and Research Institute, Namakkal proposed the vote of thanks.

GLIMPSE OF ISVPT - 2022











