



NABS *News Letter*

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Tamil Nadu Agricultural University &
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From the President's Desk

My hearty New Year greetings to all the Members.

All members of NABS are biologists. Biology is the study of living things and their processes. Biology is sub-divided into separate branches for the convenience of study like botany, zoology, microbiology, agriculture, etc. but all these sub-divisions are inter related by basic principles. Whatever we do every day involves biology in one way or the other. Biology pervades all aspects of everyday life. Taking food every day is a must to live. It is the biological systems viz. plants and animals provide us food and beverage to eat and drink. Other biological processes aid food production. Compost helps plants to grow and pollination by insects helps the plants to yield the fruit. Microbes enable creation of foods such as yogurt, cheese, bread, etc. Microbes also help to produce beer and wine. Every day we like to dress well. Clothing, we wear comes from cotton and flax. Other household items like towels, curtains, carpets also come from plants. Sweaters and blankets come from animals.

Biological sources make up the ingredients for personal care and beauty products like soap, shampoo, cosmetics, perfumes we use every day. We live or work in buildings. Wood from trees provide framework for the buildings and the furniture within them. Paper, pencils, rubber we use every day are all derived from plants. Most of us travel every day for which fuel is needed. Fossil fuels such as petroleum is formed from decayed plant and animal matter. Modern biofuels are from plant material. When we fall sick we go to a doctor who prescribes medicine. Many medicines are biologically derived mostly from plants and microorganisms, and a few from animal source like stem cells which are used to replace damaged tissues and organs.

Thus, biology is inevitably used by us in everyday life. NABS has biologists belonging to different branches like botany, zoology, microbiology, ecology, biotechnology, agriculture, animal science, food technology etc. Let us contribute our best to biology, whether through research, teaching or extension activities for the betterment of future generations.

Wish you all a happy and prosperous New Year 2024.

With Best wishes

(D.J. Bagyaraj)
President, NABS

2. Message from Vice-President...



Dear Members of NABS,

Greetings.

I am joining with President Prof. D.J. Bagyaraj, Secretary Dr. T. Marimuthu, Treasurer T.L. Baskaran, Editor Dr. S. Nakkeeran, and all the EC members to offer our warm New Year 2024 wishes. Let us hope and be optimistic that the New Year will bring more prosperity, happiness, joy, peace, harmony, and a healthy life to everyone. We do expect that the NABS will be strengthened under the able leadership of Prof. Bagyaraj and with the support of all the office bearers, and hopefully new activities will be initiated to disseminate the latest developments in all the branches of Biological Sciences for the benefit of all the stakeholders.

NABS has already decided to join with Manonmaniam Sundaranar University (MSU), Thirunelveli, Tamil Nadu, India, to organize the 14th NABS Conference in February 2024.

However, due to the recent unprecedented flood situation due to copious rain in the southern districts of Tamil Nadu, including Thirunelveli, the organizers at MSU facing some difficulty in organizing the conference as planned. We anticipate some delay in finalizing the dates of the conference. The President and other office bearers are working with the MSU to finalize the dates, and hopefully the dates will be announced at the earliest. My respected fellow NABSANS, we are looking forward to have your fullest support and active participation to make the conference a grand success.

N. Mathivannan
(N. Mathivannan)
Vice-President

3. Message from Editor



Dear Members of NABS,

New Year Greetings.

EDUCATION SYSTEM FOR AGRI START-UPS TO ENSURE EMPLOYMENT SECURITY AMONG FARM GRADUATES

The education system plays a crucial role in shaping the future of agriculture and ensuring employment security among farm graduates. In recent past, the graduate's intake in agriculture education is on the increasing trend across the Nation. But, the major question among the administrators and policy makers is, "Is it possible for employment security for all the farm graduates?" Once there was employment security to the farm graduates even before they complete the graduation. But, now the scenario is totally different. Based on the vision of National Education Policy, there has been a growing interest in Agri-Start-Ups, and integrating this trend into agricultural education, which can contribute significantly to the development of a sustainable and secure employment landscape for graduates in the field.

To inculcate employment security, the following issues are to be addressed.

- Bridging the knowledge gap between theory and practice.
- Development of entrepreneurial skills.
- Technological integration
- Sustainable Agriculture Practices
- Industry Collaboration and Exposure
- Financial Literacy and Networking opportunities

A modern agriculture education system should emphasize a balance between theoretical understanding and practical application. Knowledge gap between theory and practice need to be bridged. However, traditional agricultural education

often focuses on theoretical knowledge, but Agri-Start-Ups require practical skills and hands-on experience. Incorporating internships, fieldwork, and practical projects into the curriculum can prepare the students for the real-world challenges of running or handling of Agri-Start-Ups.

Agri-Start-Ups often require entrepreneurial skills to innovate and manage the ventures successfully. Practical exposure should have options for business planning, financial management, marketing, and other essential entrepreneurial skills. As modern agriculture heavily relies on technology, including precision farming, data analytics, and automation, we have to keep pace with technological advancements. Integrating courses on agricultural technology, data science, and smart farming practices can equip graduates with the skills needed in Agri-Start-Ups, making them as the best suited candidates for employment in the evolving agricultural landscape. Further, graduates with knowledge in sustainable practices will be better positioned to contribute to and thrive in Agri-Start-Ups that prioritize environmental responsibility. In addition, partnerships between educational institutions, agro based industries and Agri-Start-Ups can provide farm graduates with valuable industry exposure. Guest lectures, workshops, and collaborative projects with professionals from the Start-Up ecosystem can expose student's insights into the real-world challenges and opportunities in the agricultural sector.

Hitherto, for the success of employment security, understanding financial management is crucial for Agri-Start-Ups. Incorporating financial literacy courses into the curriculum can empower graduates to make informed on financial decisions, manage resources efficiently, and navigate the financial challenges faced by Start-Ups. Building a strong professional network is also a vital issue for career growth. Facilitating networking opportunities for students by organizing industry events, job fairs, and alumni interactions are very vital. These connections can help graduates to secure employment in Agri-Start-Ups and access mentorship opportunities. In conclusion, an education system tailored to the needs of Agri-Start-Ups can significantly enhance employment security among farm graduates.

Sd.
(S. Nakkeeran)
Editor

4. News and Events

4.1. News

The 14th NABS-National Conference with the theme, "Innovations in Biology and Biotechnology for their Application in Agriculture and Animal Sciences for Food Security" in collaboration with Manonmaniam Sundaranar University, Tirunelveli is scheduled to be held during the last week of February, 2024. The exact date and the program will be communicated well in advance.

4.2. Events

National Academy of Biological Sciences organized the Fourth Series of one day 'Prof. SK Memorial NABS Lecture Workshop' at Vivekananda College, Agasteeswaram, Kanyakumari District of Tamil Nadu on 25-08-2023 (Friday) with the theme, "Emerging Trends in Life Sciences, Environment, Agriculture and Health".

Inaugural function :

- Dr. C. Rajan, Secretary, Vivekananda College and other dignitaries lit the Kuthuvilakku in the presence of Adv. K. S. Moni, President, Vivekananda Educational Society and Thiru. S.R. Subramanian, Treasurer, Vivekananda Educational Society.
- Dr. T.C. Mahesh, Convener of the workshop welcomed the participants.
- Dr. M. Subramanian, Former Director of Research (TNAU) and the EC member briefed about the objectives of the workshop.
- Dr. C. Rajasekar, Principal, Vivekananda College, delivered the presidential address.

- Prof. N. Thajuddin, Pro Vice Chancellor, B. S. Abdur Rahman Crescent Institute of Science & Technology (Deemed to be University), Chennai delivered the inaugural address followed by the lecture on “Microalgae - A sustainable bio-resource for our present and future”.
- Three lectures were delivered as listed below:

Guest Speaker	Title
Prof. Dr. M. Subramanian Formerly Director of Research (TNAU) Madurai	Nutritionally rich traditional rice (<i>Oryza sativa</i> L) for sustainable health
Prof. Dr. N. Thajuddin Pro Vice Chancellor B.S.Abdur Rahman Crescent Institute of Science & Technology, Vandalur, Chennai	Microalgae - a sustainable bio-resource for our present and future
Prof. Dr. M. Prakash Professor of Crop Physiology & Controller of Examinations Annamalai University, Annamalainagar, Chidambaram	Millets: Super Food for Sustainable Agriculture and Food Security.

Valedictory Function:

- Dr. Sree Devi Kumar, Assistant Professor of Zoology welcomed the gathering.
- Dr. N. Mathivanana, Vice President, NABS & Director, CAS in Botany, University of Madras, Chennai delivered valedictory address.
- Dr. M. Subramanian, Former Director of Research (TNAU) and the EC member distributed the Participation Certificates.
- The workshop was concluded after vote of thanks by Mr. J. Dharmalingom, Assistant Professor of Zoology, MSU.

5. Research highlights

5.1. Efficacy of botanicals and bio-pesticides for the management of pest complex of potato during post-rainy season in Karnataka, India

The field experiments were conducted in a randomized block design during two consecutive *rabi seasons* to evaluate the effect of botanicals and bio-pesticides on insect and mite pests of potato. The results revealed that the treatment with NSKE @ 5% proved to be the best botanical by recording 45.96 and 53.67 per cent protection against shoot borer (*Leucinodes orbonalis* Guenee) and defoliator (*Spodoptera litura* Fabricius), respectively. However, in the case of aphids and leafhoppers, neem oil @ 2% recorded protection up to 63.38 and 60.23%, respectively. The highest percent protection against whitefly and thrips was afforded by *Verticillium lecanii* 2×10^8 cfu/g @ 2 g/l with 61.20 and 62.27 per cent protection, respectively. The

treatments azadirachtin 3000 ppm @ 3.00 ml/l and NSKE @ 5% offered the highest protection over control against mites by recording 45.24 and 44.44 per cent protection, respectively. The maximum net return of • 2,38,573 per hectare was obtained from chlorpyrifos 20 EC @ 2.00 ml/l with a cost-benefit ratio of 6.92. Among the botanicals NSKE @ 5%, neem oil @ 2% and azadirachtin 3000 ppm @ 3 ml/l recorded higher benefit-cost ratios of 5.45, 5.04 and 4.82, respectively. The above botanicals and biopesticides which are effective against potato pests could be recommended for their management without any fear of residues in tubers and are safe for the applicators and the environment.

P. K. Natikar, R. A. Balikai and D. N. Kambrekar

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5.2. Cancer metabolism

In this seminal article on cancer metabolism, we have demonstrated for the first time a distinct mechanism of action for PFK15 (PFKFB3 inhibitor) derived from 3PO compared to AZ67 in TNBC cells. Nevertheless, we exhibited the inhibitory effects of PFK15, particularly on TNBC migration, colony formation, and Phospho-fructokinase inhibitor-1 (PFK-1) activity (in conjunction with PFKL), could offer valuable therapeutic prospects for TNBC patients.

Kashyap A, Umar SM, Dev J R A, Mathur SR, Gogia A,

Batra A, Deo SVS and Prasad CP.

*Associate Professor, Medical Oncology Lab, AIIMS,
Ansari Nagar, New Delhi-110029*

E-mail: researchchandra@gmail.com

5.3. Ethyl palmitate, an anti-chikungunya virus principle from *Sauropus androgynus*, a medicinal plant used to alleviate fever in Ethnomedicine

Sauropus androgynus (L.) Merr. is a medicinal shrub used for the treatment of fever in ethnomedical traditions in various Southeast Asian countries. Aim of the present study was to identify antiviral principles from *S. androgynus* against Chikungunya virus (CHIKV), a major mosquito-borne pathogen that re-emerged in the last decade, and to unravel their mechanism of action. Hydro-alcoholic extract of *S. androgynus* leaves was screened for anti-CHIKV activity using cytopathic effect (CPE) reduction assay. The extract was subjected to activity guided isolation and the resultant pure molecule was characterized by GC-MS, Co-GC and Co-HPTLC. The isolated molecule was further evaluated for its effect by plaque reduction assay, Western blot and immunofluorescence assays. *In silico* docking with CHIKV envelope proteins and molecular dynamics simulation (MD) analyses were used to elucidate its possible mechanism of action. Our results showed that hydro-alcoholic extract of *S. androgynus* showed promising anti-CHIKV activity and its active component, obtained by activity guided isolation, was identified as ethyl palmitate (EP), a fatty acid ester. At 1 µg/mL, EP led to 100% inhibition of CPE and a significant 3 log₁₀ reduction in CHIKV replication in Vero cells at 48 h postinfection. EP was highly potent with an EC₅₀ of 0.0019 µg/mL (0.0068 µM) and a very high selectivity index. EP treatment significantly reduced viral protein expression, and time of addition studies revealed that it acts at the stage of viral entry. A strong binding to the viral envelope protein E1 homotrimer during entry, thus preventing viral fusion, was identified as a possible mechanism by which EP imparts its antiviral effect. Hence we concluded that *S. androgynus* contains EP a potent antiviral principle

against CHIKV. This justifies the use of the plant against febrile infections, possibly caused by viruses, in various ethnomedical systems. Our results also prompt more studies on fatty acids and their derivatives against viral diseases.

A. Sagna, Reshma V.R. Nair, Neha Hulyalkar, S. Rajasekharan, Vinodkumar T.G. Nair, K.C.Sivakumar, S.R. Suja, Sabulal Baby, Easwaran Sreekumar
^a Ethnomedicine and Ethnopharmacology Division, Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Pacha-Palode, Thiruvananthapuram, 695562, Kerala, India, Published in Journal of Ethnopharmacology .309 (2023) 116366: 1-11.

6. Awards, Recognitions, Honours received by members of NABS

- Ambika Binesh** ■ Best oral presentation award for the paper entitled "Exploration of anti-inflammatory activities of *Portieria hornemannii* using zebrafish embryos via NF κ B associated MMP 9 expression" presented during the "National conference on integrated approaches in drug discovery and development, Phyto drugs 23" organized by Anna University in association with DST SERB held at Anna University, Trichy campus, during 16 - 17, Feb 2023.
- Amit Baran Sharangi** ■ Granted one INDIAN patent (Application number: 382186-001); Published in The Patent Office Journal No. 40/2023 dt. 06/10/2023 by Controller General of Patents, Designs & Trade Marks.
■ Granted one GERMAN PATENT-Official file number: 20 2023 102 733.4; DPMA register REGT
- Bagyaraj, D.J.** ■ Conferred with the Fellowship of Karnataka Science & Technology Academy, Bengaluru
■ Nominated by SERB-DST as a Member of the Expert Committee of PCR under OEB-Plant Sciences
■ Nominated as President, NABS
■ Nominated as Senior Advisory Editorial Board Member of the journal MycoIndia.
■ Nominated as Member of the Visionary Steering Council of the World Bioprotection Forum Research Foundation, Swansea Univ. UK.
■ Life Time Achievement Award by Asian PGPR Society
- Balakrishnan, V.** ■ Best faculty Award 2023 from Periyar University among faculty members of affiliated colleges on September 5, 2023.
■ Scientist Award conferred by IASR Kolkatta, presented during Second International Conference on Environment, Forestry and Sustainable Agriculture 23-25th November, 2023 University of Agrcultural Sciences, Bengaluru.
- Balikai, R. A.** ■ Conferred with Lifetime Achievement Award during Second International Conference on Environment, Forestry and Sustainable Agriculture (23-25 Nov., 2023) held at UAS, GKVK, Bengaluru, Karnataka by the International Academy for Science and Research, Kolkata, West Bengal, India

- Chandra Prakash Prasad**
- E-Academic Grant awarded during the 7th Korea Digestive Disease Week (KDDW)-2023 held at Grand Wlakerhill Seoul, Korea from 16-18 Nov 2023.
 - International Travel Award from Asia National Cancer Centers Alliance (ANCCA) to attend 2nd ANCCA Annual Scientific conference 2023 from 2-3 Nov 2023 at Singapore.
 - Award for Excellence in Research-2023 by Research Wing for Excellence in Professional Education and Industry (EET CRS) during 11th Academic Achievement Awards-23 at Mumbai, India.
- Chetan Keswani**
- Listed among the World's Top 2% Scientists for the single year 2022, Elsevier/ Scopus. Sub-fields: Plant Biology & Botany; Biotechnology (Sub-field Rank 2297 out of 160286). <https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/6>
 - Member of the Expert Council of the Russian Science Foundation (2023 onwards).
 - Received the "Order OF MERIT" from the Russian Academy of Natural Sciences, Moscow, Russia (2023).
 - Elected Fellow of the Society for Plant Research, India (2023)
- Gopi, M.**
- Received best paper presentation (Firs) award for the paper entitled "Effect of organic zinc (Zinc-Methionine) supplementation on the production performance and immune response in broiler breeders" at XII Biennial Conference of Animal Nutrition Association held at Mathura from 16-18th February, 2023.
- Gotyal, B. S.**
- Awarded Fellow of Plant Protection Association of India (PPAI), Hyderabad by the Society for Plant Protection Association of India (PPAI), ICAR-NBPGR, Regional Station, Hyderabad
- Jerome, A**
- Early Career Reviewer Award - Reproduction and Fertility Journal [2023].
- Kalyan K. Mondal**
- Awarded Fellow NAAS (2023) by National Academy of Agricultural Sciences
 - Joined as Joint Director (Research) at ICAR-National Institute of Biotic Stress Management, Raipur, Chhattisgarh w.e.f. 7 August, 2023.
- Krishna Gopal Mandal**
- Received the Dr. B.P. Pal Memorial Best Scientist Award 2019, from the National Academy of Biological Sciences (NABS), Chennai, on 25 Jan 2023 at Salem, Tamil Nadu.
 - Received the Fellowship of the ISOR 2022 Indian Society of Oilseeds Research, conferred by the ISOR, Hyderabad on 17 Jan 2023 at Hyderabad.
 - Received the Fellowship of the ISCAR 2022 Indian Society of Coastal Agricultural Research, ICAR-CSSRI RS, Canning Town, on 23 February 2023, at Tirupati, Andhra Pradesh.
 - Received the ISA Gold Medal 2021 of the Indian Society of Agronomy, New Delhi, on 24 Nov 2023 at Goa.
- Suja. S.R.**
- Two Indian patents were granted
 - Novel single herbal drug formulation possessing multiple therapeutic effects as wound healing, burn healing, anti-cancer, analgesic, anti-inflammatory, immuno enhancing,

platelet augmentation and anti-oxidant. Appl No. 5667/CHE/2014, Indian patent granted Feb 22, 2023.

- A herbal drug composition possessing multiple therapeutic effects- Application No. 201641010849 Indian patent granted, April 27, 2023.

Namita Ashish Singh

- Dr. V. Subrahmanyam Memorial, NABS-Best Research Paper Award for the year 2021 in Food Sciences Section, 2023 by NABS, Chennai, India
- Dr. C.M. Singh Memorial NABS-Best Research Paper Award for the year 2020 in Veterinary & Fisheries Section, 2023, by NABS, Chennai, India

Neelesh Sharma

- Awarded Fellow of National Academy of Environmental Sciences.
- Awarded Travel Grant by Food and Agriculture Organization (FAO) of the United Nations for participating in the Plenary Session of AMR-Multi-stakeholders Partnership program at FAO headquarters, Rome, Italy.

Pawan Kumar Verma

- Dr K M Sujotia Memorial Award (2023) by Indian Association for the Advancement of Veterinary Research (IAAVR) during 23rd Indian Veterinary Congress held at Kamdhenu University, Anand, Gujarat on 3-4-Feb 2023.
- NESAI Scientist Award SASE (2023) during the National Conference organized by Institute of Medical Sciences, Banaras Hindu University, Varanasi in collaboration with National Environmental Science Academy, New Delhi (22-23 April, 2023).
- Dr. Sarvepalli Radhakrishnan Life Time Achievement Award (2023) for outstanding contribution in Veterinary Pharmacology & Toxicology by Centre for Professional Advancement Continuous Education.
- Visiting Professor, Department of Pharmacology and Therapeutics and Chemistry Institute of Systems, Molecular and Integrative Biology, University of Liverpool, United Kingdom (UK) November, 2023.
- Recognized as Guest Faculty of GURU ANGAD DEV VETERINARY AND ANIMAL SCIENCES UNIVERSITY (GADVASU), Ludhiana, Punjab, India in June 2023.
- Recognized as Guest Faculty of at Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan (DUVASU), Mathura, India in July 2023.

Renu Agrawal

- Award and recognition for "Long standing contribution and dedication in Microbial science" by "Microbiologists Society, India". 15th March, 2023.
- Nominated as Chairman of "Assessment Panel of GATI program (Gender advancement for transforming Institutions)" by DST. January, 15th 2023.
- Nominated as member of High Powered Steering Committee of the Ministry of Environment, Forest and Climate Change (MOEF and CC), Government of India. 24th July, 2023.
- Elected as Executive member of Mysore Graharakara Parishad.

Navas, M.

- Received Pushpangadan Biodiversity Access and Benefit Sharing Award 2022 (Senior Level), instituted by Pushpangadan Charitable Society, NBRI, Lucknow (on 06/12/2023 at JNTBGRI)

- Panneerselvam, A.** ■ Senior Scientist Award 2023 (National) - Microbiologists Society of India
- Sourabh Deori** ■ Best Oral Presentation Award during ICAR-Agripreneurs Meet cum National Symposium "Strategies for Promotion of Incubatee in Agriculture and Allied Sectors in the Northeastern Region of India". Umaim, Meghalaya [4-5 October, 2023].
- Sinosh Skariyachan** ■ Best Microbiology Teacher Award (National Level): Microbiologists Society, India (MBSI) (2023).
- Nominated as Associate Editor: Computers in Biology and Medicine (Elsevier) (2023)
- Nominated as Academic Editor: Plos One (Plos) (2023)
- Nominated as Guest Editor: Frontiers in Microbiology (Frontiers) (2023)
- Appreciation from Elsevier for contributing two papers in 2023 that linked with United Nations' Sustainable Development Goals (SGD)
- Singh, V.K.** ■ Indian Icon Award 2023 by Friendship Forum for the distinguished Service to Nation 2023.
- Golden Glory Award 2023 by Friendship Forum for the distinguished Service to Nation 2023.
- Global Information Technology Award 2023 by Friendship Forum for the distinguished Service to Nation 2023.
- Best Teacher of India Award 2023 by Global Brotherhood Forum for the distinguished Service to Nation 2023.
- Pramod W. Ramteke** ■ Prof. Meghnad Saha Life Time Achievement Award-2023
- Life Time Achievement Award-2023 (Agriculture - Microbiology) by Prosper Foundation
- Life Time Achievement Award (Biotechnology)-2023 by Association of Biotechnology and Pharmacy

7. Publications

7.1. Books

7.1.1. Chetan Keswani

Keswani, C., Possas, C., Koukios, E.G., Viaggi, D. (Eds.) Agricultural Bioeconomy: Innovation and Foresight in Post-Covid Era. 2022. Academic Press, Elsevier, Cambridge, MA, USA 338 pages, ISBN-9780323905695.

7.1.2. Kalyan K. Mondal

Chakrabarty P.K., **Mondal, K.K.**, Saharan, M.S., Kumar, J., Mayee, C.D. (Eds.) 2023. *Advances in Plant Disease Management: Fundamentals and Basic Research (Vol I)*, CRC Press, 346 pages, ISBN 9781032516066.

7.1.3. Renu Agrawal

Renu Agrawal. 2023. Biofilms. NIPA, p.154. ISBN.9789395319140.

7.1.4. Prakash, M.

Prakash Muthu, Arjuna Samy, Anandan Ramasamy, Viswanathan Chinnusamy, B. Sunil Kumar. 2023. Legumes: Physiology and Molecular Biology of Abiotic Stress Tolerance. Springer Nature, Singapore Pte Ltd. ISBN 978-981-19-5816-8, ISBN 978-981-19-5817-5 (eBook). <https://doi.org/10.1007/978-981-19-5817-5>. Pp 1-390.

7.1.5. Pramod W. Ramteke

Value-addition in Agri-food Industry Waste through Enzyme Technology 2023. (Eds.) Kuddus, M. and **Ramteke, P. W.** (ISBN: 978-0-323-89928-4). Academic Press (Elsevier) USA

Valorization of Biomass to Bioproducts: Organic Acids and Biofuels. 2023. (Eds.) Gupta, V. K., Tuohy, M. G., Nguyen, Q. D., Bhat, R. and **Ramteke, P. W.** Elsevier Inc., Cambridge, MA, USA (ISBN: 978-0-12-822888-3).

7.2. Book Chapters

7.2.1. Ambika Binesh

Mariappan, B., Kaliyamurthi, V. and **Ambika Binesh.** 2023. Medicinal plants or plant derived compounds used in aquaculture. Recent Advances in Aquaculture Microbial Technology, Elsevier, Academic press, 153-207. <https://doi.org/10.1016/B978-0-323-90261-8.00003-1>.

Mariappan, B., Prakash, S. and **Ambika Binesh.** 2023. Probiotic nanoparticles for food. Recent Advances in Aquaculture Microbial Technology, Elsevier, Academic press, 307-338. <https://doi.org/10.1016/B978-0-323-90261-8.00008-0>.

7.2.2. Bagyaraj, D.J.

Bagyaraj, D. J., **Ashwin, R.,** Praveen, R. 2023. Arbuscular mycorrhizal fungi and their role in soil health. In: Somasundaram J., Dalal, R.C. and Lal, R. (eds.) Sustainable Soil Management: Beyond Food Production. Cambridge Scholars Publishing, Newcastle, UK. pp. 272-292.

Praveen, R., **Ashwin, R.,** Bagyaraj, D. J., Shinde, A.H. 2023. Sulfur oxidizing bacteria in agro ecosystem and its role in plant productivity: A review. *J. App. Microbiol.* DOI: 10.1093/jambio/txad161.

Praveen, R., Ashwin, R., Joanna, D., Bagyaraj, D.J. 2023. Arbuscular mycorrhizal fungi as biofertilizers for sustainable agriculture. In: Biofertilizers: Agricultural Uses, Management and Environmental Effects (Ed. Bevis, P.L.), Nova Science Publishers, NY, USA. pp. 1-31. DOI: 10.52305/USPR5544.

7.2.2. Balikai, R. A.

Balikai R A, Kotikal Y K and Mani M. 2022. Pests and their management in pomegranate. In: *Trends in Horticultural Entomology* (Eds. Mani M.), (Total Pages 1553), https://doi.org/10.1007/978-981-19-0343-4_29; pp. 763-781. Springer, Singapore. [ISBN 978-981-19-0342-7 ISBN 978-981-19-0343-4 (eBook)]

Dinesh K, Durga Y, Sushma K, Sunitha P and **Balikai R A** and Shamarao Jahagirdar. 2023. Plant parasitic nematodes diversity, diagnosis and management: An overview. In: *Animal Diversity: Taxonomical and Physiological Aspects* (Editors: Yadav P R, Balikai R A and Sagar D), M/s Academic Publishers & Distributors, Lucknow (ISBN-978-81-964368-9-6), pp. 275-307.

Hemant Kumar, Sweta Verma, Doddachowdappa Sagar, Rakesh Kumar Behera and **Balikai R A**. 2023. Physiological adaptive mechanisms of insects in different habitats. In: *Animal Diversity: Taxonomical and Physiological Aspects* (Editors: Yadav P R, Balikai R A and Sagar D), M/s Academic Publishers & Distributors, Lucknow (ISBN-978-81-964368-9-6), pp. 107-129.

7.2.3. Chandra Prakash Prasad

Shankar, A., Saini, D., Chakraborty, A., Bharati, S J., Prasad, CP., Singh, M., Pritanjali Singh, Amrita Rakesh, Rohit Saini, Rakesh Ranjan. 2023. The Relationship between Lung Cancer and SARS-CoV-2 Infection. *Oncology and COVID 19*, 45-53.

7.2.4. Neelesh Sharma

Pranay K., Gupta M.K., Devi S., Devi S., **Sharma Neelesh** and Anand A. 2023. Challenges of aptamers as targeting ligands for anticancer therapies. In: *Aptamers engineered nanocarriers for cancer therapy*, Kesharwani P (Eds.), 1st Edn., Elsevier Pvt. Ltd. pp. 472-497. ISBN: 978-0-323-85881-6

7.2.5. Navas, M.

Ijnu T P, Vilash V, Vimal Kumar C S, **Navas M**, Rajasekharan S, George V, Pushpangadan **P**. 2023. Protection of traditional knowledge, bioresources and folklore under the TRIPS agreement: recent developments in light of Nagoya protocol. In: Vilash *et al* *Biodiversity Challenges and Threats; Current Scenario*. SNCK, Kollam (ISBN 978-81-958369-2-5)

Rajasekharan, S., Nair, V.T.G., **Navas, M.**, James, T.C., Murugan, K. 2023. Traditional Knowledge and Its Sustainable Utilization. In: Sukumaran, S.T., T R, K. (eds) *Conservation and Sustainable Utilization of Bioresources. Sustainable Development and Biodiversity*, vol 30. Springer, Singapore. https://doi.org/10.1007/978-981-19-5841-0_25

7.2.6. Panneerselvam, A.

Vijayalakshmi Selvakumar, Kaarnan Muthusamy, Thenmozhi Manivel, Preethi Gopalsamy, **Panneerselvam Annamalai**, Ramachandran Chelliah and Deog-Hwan Oh., 2022. Detection of Endophytes by Visualization Methods Endophytic Microbes: Isolation, Identification and Bioactive Potentials. *Springer Protocols Handbooks*. 43-49.

Pathirajan, R., Gomathi, S., Ambikapathi, V., **Panneerselvam, A.**, Gayathri, S. and Anbukumaran, A., 2022. Intellectual Property principles in microbial technologies. *Agricultural Microbiology based entrepreneurship. Microorganisms for Sustainability*. 39:63-81.

Gomathi.S, Ambikapathy.V and **Panneerselvam.A**, 2022. Mass multiplication, production cost analysis and marketing of Azospirillum, Chapter in *Agricultural Microbiology based Entrepreneurship: Making money from microbes- Section II: Biofertilizer production. Microorganisms for Sustainability*. 39:169-185.

Gayathri.G, Babu.S, Gomathi.S, Ambikapathy.V and **Panneerselvam.A. 2022.** Production, cost benefit analysis and marketing of oyster mushroom, Food Microbiology based Entrepreneurship: Making money from microbes, 35-55. ISBN:978-981-19-5041-4.

Abirami.G, Gomathi.S, Ambikapathy.V, Gayathri.G, Shijila Rani.A.S and **Panneerselvam.A. 2022.** Small, large scale production and Cost Benefit analysis and marketing of milky mushroom, Food Microbiology based Entrepreneurship: Making money from microbes, 77-87. ISBN:978-981-19-5041-4.

Gayathri,G., S. Gomathi, V.Ambikapathy and **A.Panneerselvam**, 2022.Vol.1. Improvement of Soil Fertility, 13th Chapter, 281-301. ISBN: 9780323918756.

Gomathi, D., V.Ambikapathy and **A.Panneerselvam**, 2022. Biodegradation and bioaugmentation of pesticides using potential fungal species, 5th Chapter, 79-94. ISBN: 9780323918756.

Gomathi Selvam, Varatharaju Ambikapathy and Annamalai **Panneerselvam**. (2024). Chemical characterization and identification of postbiotics from probiotic microbes. In: Dharumadurai, D. (eds) Postbiotics. Methods and Protocols in Food Science. Humana, New York. NY. 81-84. ISBN 978-1-0716-3421-9.

Pushpa, T., Senthilkumar, G., Ambikapathy, V. and **Panneerselvam, A.** (2024). Harvesting of postbiotics and its assessment. In: Dharumadurai, D. (eds) Postbiotics. Methods and Protocols in Food Science. Humana, New York. NY. 115-113. ISBN 978-1-0716-3421-9.

Ganesan, G., Selvam, G., Ambikapathy, V. and **Panneerselvam, A.** (2024). Dietary supplementation and immunomodulatory activity of postbiotics in Oyster. In: Dharumadurai, D. (eds) Postbiotics. Methods and Protocols in Food Science. Humana, New York. NY. 323-327. ISBN 978-1-0716-3421-9.

Thavapudalvi, N., Vasantha, S., Ambikapathy, V., **Panneerselvam, A.**, Prakash, P., Kanmani, A. and Shanmugapriya, G. (2023). Postbiotic Food Packaging Using Peptides. In: Dharumadurai, D. (eds) Postbiotics. Methods and Protocols in Food Science. Humana, New York. NY.381-388. ISBN. 978-1-0716-3421-9.

Ambikapathy, V., **Panneerselvam, A.**, Babu, S., Anbukumaran, A., Shijila Rani, A.S., Jagajothi, C., Kanmani, A., Rathna, D. and Prakash, P. (2023). Postbiotic Food Packaging Using Peptides. In: Dharumadurai, D. (eds) Postbiotics. Methods and Protocols in Food Science. Humana, New York. NY. 403-407. ISBN 978-1-0716-3421-9.

7.2.7. Amit Baran Sharangi

Upadhyay, T.K., Das, S., Mathur, M., Alam, M., Bhardwaj, R., Joshi, N. and **Sharangi, A B.** 2023. Medicinal plants and their bioactive components with anti-diabetic potentials. In: *Anti-diabetic Medicinal plants-- Applications and opportunities* (eds. Naeem, M. and Aftab, T.), Chapter 10, pp. 327-364, **Elseviere**, ISBN:9780323957199. <https://doi.org/10.1016/B978-0-323-95719-9.00017-3>.

7.2.8. Namita Ashish Singh

Jain, V., Arya, P., Yagnik, S.M., Raval, V.H., **Singh, N.A.** 2023. Microbial Diversity of Cold-Water Reservoirs and Their Prospective Applications. In: Soni, R., Suyal, D.C., Morales-Oyervides, L., Sungh Chauhan, J. (eds) Current Status of Fresh Water Microbiology. Springer, Singapore. ISBN 978-981-99-5017-1 Springer Singapore pp. 49-75

Sangwan, V., **Singh**, N.A., Sindhu, M., Ganesh, A.W., Singh, A., Sihag, M.K. 2023. Methods for Measurement of Microbial Diversity. In: Mukhopadhyay, C.S., Choudhary, R.K., Panwar, H., Malik, Y.S. (eds) Biotechnological Interventions Augmenting Livestock Health and Production. Livestock Diseases and Management. ISBN No. 978-981-99-2208-6 Springer, Singapore. pp 171192

Singh N.A., Jyoti, Jain V. 2023. Aflatoxins in Food and Feed: Occurrence, Detection, and Mitigating Strategies. In: Kumar, P., Kamle, M., Mahato, D.K. (Eds) Mycotoxins in Food and Feed Detection and Management Strategies. CRC Press, Boca Raton ISBN: 9781032113920 478 pp.1-27

Singh N.A., Tehri N., Vashishth A., Kumar P. (2023) Nano-Biosensors for the Monitoring of Toxic Contaminants in Food and its Products. In: Kumar, P., Kamle, M., Mahato, D.K. (Eds) Mycotoxins in Food and Feed Detection and Management Strategies. CRC Press ISBN: 9781032113920 p.478.

8. Activities of Members

8.1. Ambika Binesh

Paper presentations International Conference

- **Ambika Binesh** and V. Kaliyamurthi. “Copper induced developmental toxicity in zebrafish embryos by modulating the antioxidant system via NF•B associated MMP 9”. 4th International Conference on Genome Biology (ICGB-4) and 54th Annual Aqua-Terr Day organised by Madurai Kamaraj, Madurai, 28th Feb to 1st March 2023.
- Kaliyamurthi V, Rohith Reddy, R. Rabika, Merli maman, Modi kiran Piyushbhai and **Ambika Binesh**. “Anti-atherosclerotic effect of Myristica fragrans extract on experimentally induced inflammatory zebrafish embryos”. 4th International Conference on Genome Biology (ICGB-4) and 4th Annual Aqua-Terr Day organised by Madurai Kamaraj, Madurai, 28th Feb to 1st March 2023.
- Rabika, R., E. Jelous Monika, Merli maman, Modi kiran Piyushbhai, V. Kaliyamurthi and **Ambika Binesh**. “Total phenolic and flavonoid contents and exploration of anti-inflammatory activity of Zingiber officinale in copper induced zebrafish embryo”. 4th International Conference on Genome Biology (ICGB-4) and 54th Annual Aqua-Terr Day organised by Madurai Kamaraj, Madurai, 28th Feb to 1st March 2023.
- Merli maman, R. Rabika, Modi kiran Piyushbhai, V. Kaliyamurthi and **Ambika Binesh**. Antiinflammatory and antioxidant properties of the aqueous extract of Emblica officinalis in copper induced inflammation in zebrafish embryos. 4th International Conference on Genome Biology (ICGB-4) and 54th Annual Aqua-Terr Day organised by Madurai Kamaraj, Madurai, 28th Feb to 1st March 2023.
- Modi Kiran Piyushbhai, R. Sandhya, Merli maman, R. Rabika, **Ambika Binesh** and Kaliyamurthi Venkatachalam. Inhibition of NF•B and MMP 9 secretion in copper sulphate induced Zebrafish Embryos after exposure of *Elettaria cardamomum* extract. 4th International Conference on Genome Biology (ICGB-4) and 54th Annual Aqua-Terr Day organised by Madurai Kamaraj, Madurai, 28th Feb to 1st March 2023.

Paper presentations - National Conference

- **Ambika Binesh**, R. Rabika, Merli maman and Kaliyamurthi V. “FTIR - ATR Spectroscopy evaluation of anti-inflammatory activities of Gracilaria edulis in Copper Sulfate Induced Zebrafish embryos via NF•B associated MMP 9 expression”. National conference on integrated approaches in drug discovery and development, phyto-drugs 23, organised by Anna University in association with DST SERB, 16th to 17th Feb 2023.
- Kaliyamurthi V, R. Rabika, Merli maman and **Ambika Binesh**. “Exploration of anti-inflammatory activities of Portieria hornemannii using Zebrafish embryos via NF•B associated MMP 9 expression”. National conference on integrated approaches in drug discovery and development, phyto-drugs 23, organised by Anna University in association with DST SERB, 16th to 17th Feb 2023.

8.2. Bagyaraj, D. J.

- Attended 13th National Conference of NABS and General Body meeting held at Periyar University, Salem
- Attended 22nd Foundation Day program and the brainstorming session on “Future research in Agriculturally Important Microorganisms” at ICAR-NBAIM, Mau
- Invited to give lead lectures/ chair the session at
 - a. Microbiologists Society, India, Chandigarh
 - b. SABIC Research & Technology Pvt. Ltd., Bengaluru
 - c. Platinum Jubilee Conference of IPS at Univ. of Mysore, Mysuru
 - d. Dept of Microbiology and Biotechnology, Bangalore Univ., Bengaluru
 - e. 8th Asian PGPR Society Conference organized by Univ. of Agricultural & Horticultural Sciences, Shivamogga, - Amity Univ., Noida
- Delivered lectures as Resource Person of National Academies (INSA/NASI/IASc) Lecture Workshop at
 - a. PSGR Krishnammal College for Women, Coimbatore
 - b. NGM College, Pollachi
 - c. Teresian College, Mysuru

8.3. Balikai, R. A.

Paper presented in International Conference

Balikai R A and Natikar P K (2023) Impact of Climate Change on Silkworms and Silk Industry. Paper presented at the *Second International Conference on Environment, Forestry and Sustainable Agriculture* (23-25 Nov 2023), UAS, GKVK, Bengaluru, Karnataka, India.

8.4. Chandra Prakash Prasad

Delivered Invited Lectures on:

- 'Modulating lactate levels in Triple Negative Breast Cancers (TNBC) as promising therapeutic approach' held at Singapore from 2-3 Nov 2023.
- 'Understanding the molecular basis of environmental carcinogenesis' at CRABECON executive summit & CRABECON cancer conclave held at Jammu, from 7-8 Oct., 2023.
- 'Quercetin targets the HuR-signaling axis to inhibit Triple Negative Breast Cancer (TNBC) migration: Link to metabolism' at 49th Annual conference of Association of Clinical Biochemists of India (ACBICON23) held at Thiruvanthapuram, Kerala from 14-16 Sept., 2023.
- Beta-catenin as a metabolic regulator of Triple Negative Breast Cancer' at North Zone ACBI conference held at AIIMS, Bilaspur from 27-28th April, 2023.
- 'Lactate metabolism in Triple Negative Breast Cancer at EMBO Lecture Series on Tumor Metabolism: 'Current understanding and opportunities for novel drug discovery' held at Amity University Noida from 28-31 March, 2023.

8.5. Chetan Keswani

- Delivered Guest Lecture on “Managing Plant Stress with Agriculturally Important Microorganisms” in the International Ecological School on "Black Earth" Kalmyk State University Named after Irmeni B. B. Gorodovikova at Elista, Republic of Kalmykia, Russia from 22 to 26 May, 2023.

8.6. Marimuthu, T.

- Participated in the 'World Fungus Day' organized by Department of Microbial Technology, School of Biological Sciences, Madurai Kamaraj University on 8 October, 2023.
- Participated in the Local Organizing Committee Meeting of ISNS National Conference on “Sustainable Wellness through Noni on 8 October, 2023 held at Madurai Kamaraj University.

8.7. Mathivanan, N.

- Delivered a lecture during the 'World Fungus Day' organized by Department of Microbial Technology, School of Biological Sciences, Madurai Kamaraj University on 8 October, 2023.
- Participated in the Local Organizing Committee Meeting of ISNS National Conference on “Sustainable Wellness through Noni on 8 October, 2023 held at Madurai Kamaraj University

8.8. Suja S.R.

- Chaired a technical session in Indo-US Seminar, Recent Biochemical Approaches In Therapeutics (RBAT-IX 2023) organized by Department of Biochemistry, University of Kerala, Thiruvananthapuram, India & College of Nursing, University of Wisconsin, Milwaukee, USA (February 1-3, 2023).

8.9. Jerome, A.

- Co-Chaired Bovine Fertility and Obstetrics Technical Session at ISSAR 2023 International Conference, Mannuthy, Kerala [6-8 Dec 2023].

8.10. Kalyan K. Mondal

Special/invited lectures delivered

- T3SS-effector of *Xanthomonas oryzae* pv. *oryzae* subverts rice immune system through interacting rice key proteins during bacterial blight development. In National Conference on “Plant & Soil Health Management: Issues and Innovations” at University of Mysore, Mysuru, India, February, 2-4, 2023 (Keynote speaker).
- Bacterial T3SS-effectors vs Plant Immunity: Insight and Scope for disease resistance. In: 10 days ICAR funded short training course on “Application of Molecular and Conventional Approaches in Plant Disease Management” held at College of Agriculture, CSK HPKV, Palampur, from 13-22, February, 2023. (CAFT Training talk).

Organizing Conference:

- Organized, as Co-convener, the Indian Phytopathological Society's Platinum Jubilee Conference on “Plant and Soil Health Management: Issues and Innovations” at University of Mysore, Mysuru, Karnataka, India, from 2-4 February, 2023.

8.11. Krishna Gopal Mandal

- Delivered a **Plenum Lecture** on '*Efficient water management and cropping system intensification in coastal areas and waterlogged ecosystems*' during the 13th National Symposium of the ISCAR on '*Fostering Resilient Coastal Agro-Ecosystems*', 22-25 Feb 2023, held at RARS, Tirupati, ANGRAU, Andhra Pradesh
- Delivered a **Lead Lecture** on '*Efficient water management and crop intensification*' during the Indian Soc Agronomy (ISA) XXII Biennial National Symposium, '*Climate Smart Agronomy for Resilient Production Systems and Livelihood Security*', Nov 22-24, 2023 held at ICAR-CCARI, Goa

8.12. Neelesh Sharma

Post-Doctoral Training:

- Underwent 3 months (April-June, 2023) Post-Doctoral Training at University of Sao Paulo, Brazil.

Organized Conference:

- Organized 4th Annual Convention and Symposium of Veterinary Internal & Preventive Medicine Society on “Advancing Veterinary Medicine for Holistic Development of Animal Health and Productivity with a One Health Approach” on 18-19 December, 2023.
- **Co-organizing Secretary** of conference on “Investing in Agro-technologies for Self Reliance”, SKUAST-Jammu, 05-06, Oct. 2023.

Special/invited lectures delivered:

- “Mastitis in Dairy Animal: From basics to advances in diagnosis and treatment” under DECOTA program of Universitas Airlangga, Indonesia, 24 Feb., 2022.

8.13. Renu Agrawal

- Invited as Chief Guest by University of Mysore on 112th International Women's Day on Digital Literacy: Innovation and Technology for gender equality. 8 March, 2023.
- Invited as guest speaker by Government of Karnataka on "Anemia Mukht Karnataka- Role of various stake holders". 7th March, 2023.
- Invited as Chief Guest by The Institution of Engineers (I) on Embrace Equality. 8 March, 2023.
- Invited Talk on Opportunities for value addition in agricultural crops organized by Agriculture Information. January, 2023.
- Invited talk at, 108th Indian Science Congress; 10th Women's Science congress, Nagpur on "Opportunities in Food science and Technology for sustainable development with women empowerment", January, 5, 2023.
- Invited talk on "Hazardous Critical Points and standard operating procedures in Food Industries". Organized by Microbiologists Society, India. 2 March, 2023.
- Invited talk on " Food Preservation and Food Safety" organized by ISHRAE (Indian society of heating refrigerating and air conditioning Engineers). 15 October, 2023.
- Special Invitee at TIASN meeting organized by DST, 8-9th November, 2023.
- Invited as Chief guest on Earth Day at Mahajana Public School, Mysuru. 28 January, 2023.
- Elected as a Founded Youth Fora in schools and colleges of Mysuru city. Mahajana, Rotary Brindavan schools. Vidya Vartika Engineering college, Puttaswamy first grade college. Many talks of interest to students on environment were arranged. Sensitized public on food adulteration under MGP.

8.14. Pawan Kumar Verma

- As Organizing Secretary, organized two days training program on “Hands on Training for Determination of Antioxidant status and cellular damage indicators and their significance in diseases organized by Division of Veterinary Pharmacology & Toxicology, F V Sc & AH, SKUAST-J, R S Pura from 18 and 19th Oct 2023.

8.15. Navas, M.

Papers Presented

- Navas, M., T K Hrideek, O L Pius and K J Dantas 2023. Conservation and augmentation of medicinal plants resources in selected sacred groves of Kerala. International Conference on Eco-Restoration for Natural Resource Management (ICER-NaRM-2023) ” from Aug 24th & 25th 2023. organized by S.T. Hindu

College, Nagercoil, Kanniyakumari district, Tamil Nadu, India in collaboration with Rift Valley Studies (CERVaS), Hawassa University, Ethiopia Volta Breams, Ghana, IOBI, Kampala and Society for Advancement of Biological Sciences, India Book of Abstracts. Pp.33-34.

- Navas, M., T K Hrideek, O L Pius and K J Dantas 2023. Women empowerment through conservation and popularisation of medicinal plants. 35th Kerala Science Congress, 10-14 February 2023, organized by Govt. of Kerala. Book of Abstracts. Pp.345-346.
- Navas, M., G Rajkumar, T K Hrideek, S L Anooj, J S Ajinsha and O L Pius 2023. Medicinal Plant Diversity in Sacred Groves of Alappuzha District, Kerala. 33rd Annual Conference of Indian Association for Angiosperm Taxonomy (IAAT) & International Seminar on Advances in Plant Systematics, Biogeography and Biodiversity Conservation. Department of Botany, University of Calcutta. Book of Abstracts, pp.199.
- Krishnakumar, N. M., M. Navas, G Rajkumar, P. M. Sharcena and S. A. Ceasar 2023. Ethnic food culture focusing on leafy vegetables by Gowda Saraswatha Brahmin community of Alappuzha district, Kerala. 33rd Annual Conference of Indian Association for Angiosperm Taxonomy (IAAT) & International Seminar on Advances in Plant Systematics, Biogeography and Biodiversity Conservation. Department of Botany, University of Calcutta. Book of Abstracts, pp.85.
- Navas, M., T.K. Hrideek, O.L. Pius & K.J. Dantas 2023. Rural Livelihood Development Through Medicinal Plants Cultivation. National Seminar on Plant Biodiversity, Genetics, Breeding and Biotechnology. Department of Botany, University of Calicut & Gregor Mendel Foundation, University of Calicut. Book of Abstracts, pp.37.

8.16. Panneerselvam, A.

Paper presentations

- Isolation, Identification of Fresh Water Microalgae and their lipid profiles & FTIR Spectrum Analysis. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Ambikapathy, V., **Panneerselvam, A.** and Prakash, P.
- Isolation and identification of blue green algae from moist soil in botanical garden of Sri Pushpam College campus. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Gayathri, G., Glomathi, S., Ambikapathy, V. and **Panneerselvam, A.**
- A promising future of microalgae: current status and challenges. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Deepan, B., Ambikapathy, V. and Panneerselvam, A.
- Isolation and growth identification of microalgae from temple pond in Thiruvavur District. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Balaji, S., Ambikapathy, V. and Panneerselvam, A.
- Isolation and growth characterization of the fresh water algae *Chlorella* sp. on different growth media. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Durgadevi, M., Manimegalai, V.,

Gomathi, S., Ambikapathy, V. and **Panneerselvam, A.**

- Production of biodiesel from microalgae collected from Thirukollikadu, Thiruvarur (District), Tamil Nadu, India. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Ganesh, N., Babu, S., Gomathi, S., Ambikapathy, V. and **Panneerselvam, A.**
- Isolation and identification of microalgae from different fresh water sources in Thanjavur district. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Abirami, K., Ambikapathy, V. and **Panneerselvam, A.**
- Isolation and Identification of microalgae from fresh water. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Subalakshmi, P., Ambikapathy, V. and **Panneerselvam, A.**
- Isolation and identification of marine microalgae from Kodiyakkarai and Rameshwaram of Tamil Nadu, India. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Vaanmathi, A., Gomathi, S., Ambikapathy, V. and **Panneerselvam, A.**
- Isolation and analysis of nutrients from micro algae collected from Narthangudi, Thiruvarur district, Tamil Nadu, India. “International Conference on: Food, Feed, Fuels and Fine Chemicals ICA-F4'23” held at Bharathidasan University, Tiruchirappalli 620 024 on September 6 to 8th 2023. Nandhini, D., Babu, S., Gomathi, S., Ambikapathy, V. and **Panneerselvam, A.**

Special/Invited lectures delivered

- Resource Person Two week online Training Programme on Women Entrepreneurship Development Programme (WEDP) topic on Mushroom cultivation and value addition organized by Tamil Nadu State Council for Science and Technology held on from 15/05/2023 to 31/05/2023.
- Resource Person Biopiracy of microbes in marine and terrestrial domains & Workshop on biofertilizer production organized by PG and Research Department of Microbiology, Mohamed Sathak College of Arts and Science held on 20th September 2023.
- Acted as Domain and EDP assessors for the assessment of Pisciculture Training Batch at IOB-RSETI, Keelathottam, Rajamadam, Thanjavur held on 29.09.2023.

8.17. Pinaki Prasad Sengupta

Invited Lectures:

- Advances in the diagnosis of neosporosis during 24th national training program of ICAR Centre of Advanced Faculty Training on “ Application of diagnostic tools for parasitic diseases of veterinary and public health importance” at Veterinary College, KVAFSU, Bengaluru, 5-25 January, 2023.
- Advanced Techniques for diagnosis of Haemoprotozoan Parasitic Diseases in Large Ruminants: An Update. In the 32nd National Congress of Veterinary Parasitology, Veterinary College, BASU, Patna, Nov., 29 to 1, Dec., 2023.

Chaired Session:

- Served a Chairman during the session of IAAVP (Indian association for the advancement of veterinary parasitology) Young Scientist Award In the 32nd National Congress of Veterinary Parasitology, Veterinary College, BASU, Patna, Nov., 29 to 1, Dec., 2023.

8.18. Prakash, M.

- Delivered a Lecture on 'Millets: Super Food for Sustainable Agriculture and Food Security' during Prof. SK Memorial NABS Lecture Workshop' with the theme, 'Emerging Trends in Life Sciences, Environment, Agriculture and Health' at Vivekananda College, Agasteeswaram, Kanyakumari Dist., of Tamil Nadu on 25-08-2023.

8.19. Balakrishnan, V.

- Delivered during the Workshop on awareness on NET Examination for PG students @ Arignar Anna Government Arts College, Namakkal on 30-03-2023
- Delivered Research methodology at Department of Biotechnology, K.S.Rangasamy College of Arts and Science, Tiruchengode on 25-04-2023
- Delivered a lecture on Health and Hygiene, Government Polytechnic College, Kaniyalampatti, Karur (05-07-2023)

8.20. Sourabh Deori

- Co-Chaired a Technical Session (Veterinary Gynaecology and Obstetrics) of national Clinical Case Conference 2023 organized by College of Veterinary Sciences & Animal Husbandry, Central Agricultural University, Selesih, Aizawl, Mizoram. 13-14 October, 2023.
- Participated as Expert during National Workshop on “Atlas on climate change adaptation in South Asian Agriculture”. Organized by ICAR-National Dairy Research Institute, Karnal. 21, November, 2023.

8.21. Sinosh Skariyachan

- **Invited Speaker.** Three Day National Level Workshop In Silico tools for Computer Aided Drug Design (i-CADD). Jointly organized by the department of Chemistry & Zoology, Lady Doak College, Madurai & Department of Physical Chemistry Madurai Kamaraj University, Madurai, TN. 29 November 01 December 2023. Topic: Scope of Molecular Modeling and Docking in Computational Drug Discovery. 30 November 2023.
- **Chief Guest & Invited Speaker.** National Seminar 2023 organized by PG Department of Microbiology in Association with IQAC Sharaf Arts & Science College. Kaithakkad, Kasaragod, Kerala. 10 November 2023. Title: Curtailing Global Antimicrobial Resistance by Integrated Microbial Omics.
- **Invited Speaker.** Two-day national seminar on sustainable future through microbial innovations sponsored by Directorate of Collegiate Education, Govt. of Kerala. Topic: Computational Molecular Biology in Curtailing Global Antimicrobial Resistance: Innovations in Microbial Omics. 12 October 2023
- **Invited Speaker.** National Seminar under DBT Star scheme program organized by Department of Biotechnology, RVS College of Arts and Science (Autonomous), Coimbatore, TN. Topic: Recent Trends, Scope and Opportunities of Computational Biology and Bioinformatics. 22 September 2023.

- **Chief Guest and Plenary Speaker:** Department of Biotechnology (DBT), Govt of India sponsored Star College Scheme program at Department of Biotechnology, Kongu Arts and Science College, Erode (Autonomous Institution affiliated to Bharathiar University, Coimbatore), Tamil Nadu. Talk Title: Bioinformatics Based Approaches for Discovering Novel Drugs Against Emerging Infectious Diseases. 03 August 2023.
- Invited Speaker. First National Conference of Microbiologists Society of India (MBSI) on “Biotechnology for Better Tomorrow” 22-24 January 2023. Organized by MBSI & Department of Microbiology, Shri Sachhidanand Shikshan Santha's Taywade College, Mahadula- Koradi, Nagpur. Topic: Computational medicinal chemistry and virtual screening aided approaches of discovering potential molecular targets and natural lead molecules towards multidrug resistant *Pseudomonas aeruginosa*. 21-24 January, 2023.

Papers presented in the conferences

- Sinosh Skariyachan and Roshni Ravishankar 2023. Computational medicinal chemistry and virtual screening aided approaches of discovering potential molecular targets and natural lead molecules towards multidrug resistant *Pseudomonas aeruginosa*. First National Conference of Microbiologists Society of India (MBSI) on “Biotechnology for Better Tomorrow” 22-24 January 2023. Organized by MBSI & Department of Microbiology, Shri Sachhidanand Shikshan Santha's Taywade College, Mahadula-Koradi, Nagpur. 21-24 January, 2023.
- Parambilam Kandi Hima, Kunnumal Aswathy, Sinosh Skariyachan, and Duddukuri Govinda Rao. 2023. Structural and molecular based screening of antidiabetic drugs as potential inhibitors for human DNA methyl transferase for cancer therapy. International Conference on Molecular Medicine and Therapeutics (ICMT-2023). Organized by Department of Biochemistry and Biotechnology, Annamalai University, Tamil Nadu. 06-07 January, 2023.

8.22. Namita Ashish Singh

- Made oral presentation on “Microbes and Climate Change: Correlation and Impact” on 24 April, 2023 in “International Conference to Sustain the Mother Earth” organized by Dr. D.S. Kothari Institute For Research and Education, Udaipur, Shri Shankheshwar Puram Vigyan Tirth, Palitan, Gujarat, MLSU, Udaipur etc.
- Delivered an invited talk on “An innovative approach for Aflatoxin M1 detection in milk and Intellectual Property Rights (IPR)” on 30 September, 2023 at Kanoria PG Mahila Mahavidyalaya, Jaipur (Raj.) India
- Delivered an invited talk on “Aflatoxin M1 and antibiotics residues in milk: A Global Concern” on 17 May, 2023 at College of Dairy and Food Technology, MPUAT, Udaipur (Raj.) India
- Delivered an invited talk entitled “Spices and herbs as antiviral preventives and immunity boosters during COVID-19” on 20 February 2023 at Deptt. of Chemistry, DAVPG College Gorakhpur affiliated with DDU Gorakhpur.
- Delivered an invited talk on “Career Opportunities in Microbiology/ Biotechnology” on 08.01.2023 at Jawahar Navodaya Vidyalaya, Mavli under the Vigyan Jyoti Mission of Department of Science & Technology (DST), New Delhi.

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On behalf of National Academy of Biological Sciences

An appeal to members of NABS

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