

विद्यया तन्त्राग्न्या अनुवादन

DEPARTMENT OF SCIENCE AND TECHNOLOGY

NITTE UNIVERSITY TECHNOLOGY ENABLING CENTRE

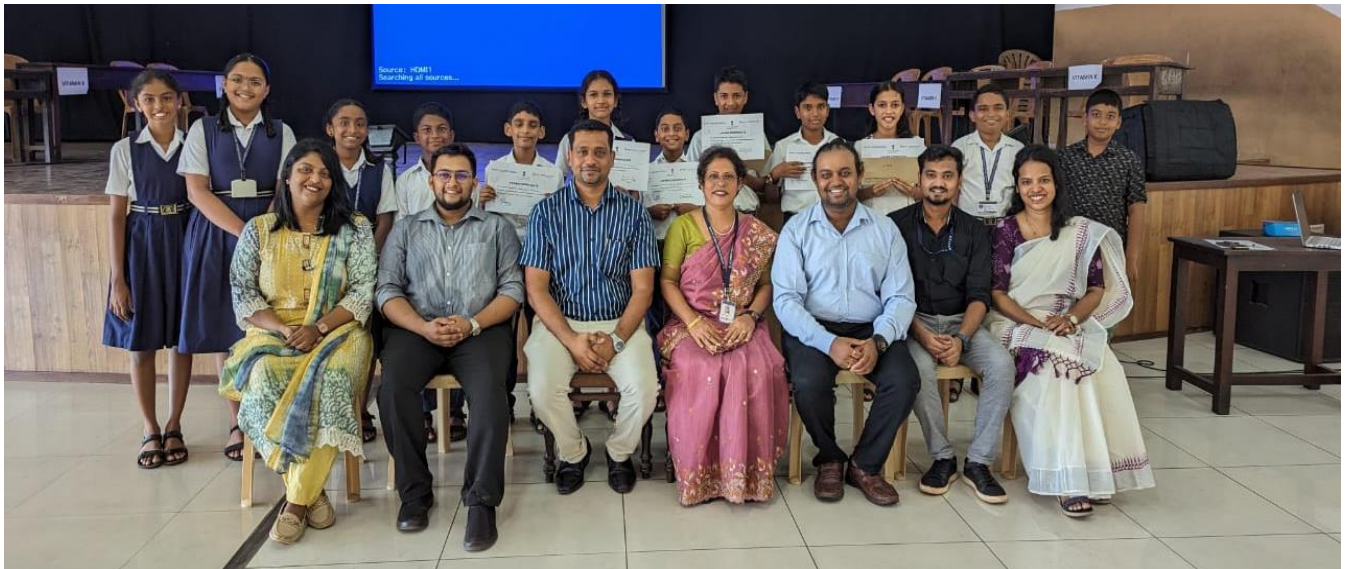


DST NU-TEC Chronicle | June to September 2024

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World Food Safety Day-2024

07 June 2024



DST TEC, along with Nitte University Centre for Science Education and Research (NUCSER) and the Department of Public Health, K S Hegde Medical Academy (KSHEMA), and Nitte DU, jointly organized the World Food Safety Day at St Aloysius College Higher Primary School, Karnagalpady, Mangaluru, on 7 June 2024. The event consisted of a quiz competition and education about food safety with the students belonging to grades 5-7. The event was attended by around 370 students and 25 teachers of the School. The Head Mistress, Ms Jositta Noronha, welcomed the gathering and introduced the program organizers to the students and faculty of their school.

Dr Akshatha K, Assistant Professor NUCSER, spoke about the significance of food safety in our daily life and provided the background for the declaration of June 7 as the World Food Safety Day by the United Nations. She mentioned that this day is celebrated to raise awareness about the importance of food safety and promote actions to prevent, detect and manage foodborne risks. The day highlights the critical role that food safety plays in ensuring that everyone has access to safe, nutritious and sufficient food.

The highlight of the event at St Aloysius College Higher Primary School was an intellectually stimulating quiz competition that brought together six enthusiastic groups of students, each group consisting of two members who demonstrated their knowledge and teamwork skills. The competition comprised five rounds, including general knowledge about food hygiene, nutrition content in food, food brands, processed food and pasteurization, featuring multiple-choice questions, fill-in-the-blanks, picture identification and rapid-fire rounds. Mr Prajwal Jupiter Lobo, Assistant Professor Department of Public Health, KSHEMA moderated the quiz session. Conducted with fair rules and time limit, the quiz maintained a competitive yet friendly atmosphere. The top three winners of the event were awarded with cash prizes sponsored by DST TEC.

Dr Mackwin DMello, HOD of Public Health KSHEMA, Dr Caroline Dsouza, Dr Nishith, and Mr Rahul Patil, Project Associates from DST TEC, engaged the children, discussing the importance of food safety and raising awareness on the topic. Mr Padmanabha Rao from St Aloysius College Higher Primary School thanked the organizers of the program on behalf of the management, staff and students of the School.

The event was a resounding success, highlighting the importance of food safety education and fostering a spirit of curiosity and learning among young minds.



Output of CAMPCO funded project-Presentation by researchers to the CAMPCO management team

25 June 2024



The Central Areca nut and Cocoa Marketing and Cooperative Society (CAMPCO) had funded a project to study if the whole areca nut has toxicity at cellular and organismal level. DST TEC enabled this funding and the activities were carried out at Nitte University Centre for Science Education and Research (NUCSER) and the AB Shetty Memorial Institute of Dental Sciences (ABSMIDS). A consolidated project report on evaluation of the effect of areca nut aqueous extract on cultured cells, in drosophila and zebrafish models as well as detection of oral cancer in populations chewing areca with other ingredients was presented by the scientists of NUCSER and ABSMIDS to the CAMPCO Management team on 25 June, 2024 at 10.00 am at DST-TEC. Prof. Dr Indrani Karunasagar, Director (Projects & DST-TEC), Nitte DU, welcomed the gathering and gave the opening remarks, and Prof. Dr Iddya Karunasagar, Advisor (Research & Patents), Nitte DU, introduced Dr B V Sathyanarayana to the gathering.

Dr B V Sathyanarayana, Managing Director, CAMPCO; Dr Keshava Bhat, Head of Areca Research and Development Foundation (ARDF) and Mrs Reshama Mallya, General Manager, CAMPCO and Mr Krishna, Agricultural officer were present. The core investigators of the project Dr Anirban Chakraborty, Department of Molecular Genetics and Cancer, Director, Dr Anurag Sharma, Department of Environmental Health and Toxicology, Dr Sudarshan Kini, Department of Bio & Nanotechnology, NUCSER; and Dr Audrey M DCruz and Dr Thara Chandran, Department of Public Health Dentistry, Dr Pushparaj Shetty, Department of Oral and Maxillofacial Pathology and Oral Microbiology, ABSMIDS along with the research scholars presented the findings from the project. Overall, the results suggest that the aqueous extract of areca nut is non-toxic at the cellular and organismal levels and in the community study of a population chewing only arecanut, no oral cancer was detected.



MoU between Nitte DU and ICAR- Central Marine Fisheries Research Institute (CMFRI)

5 July 2024



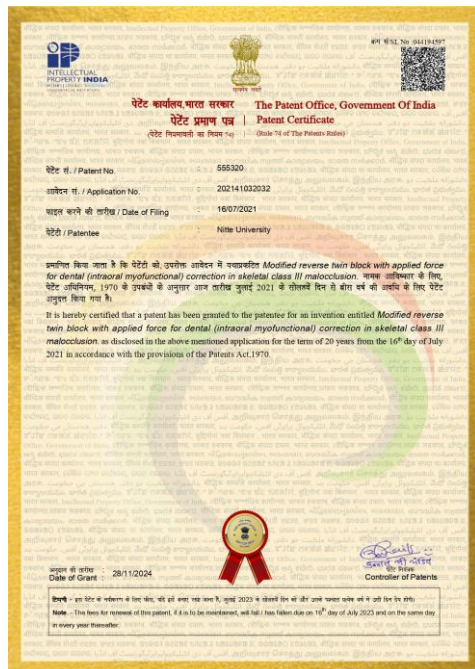
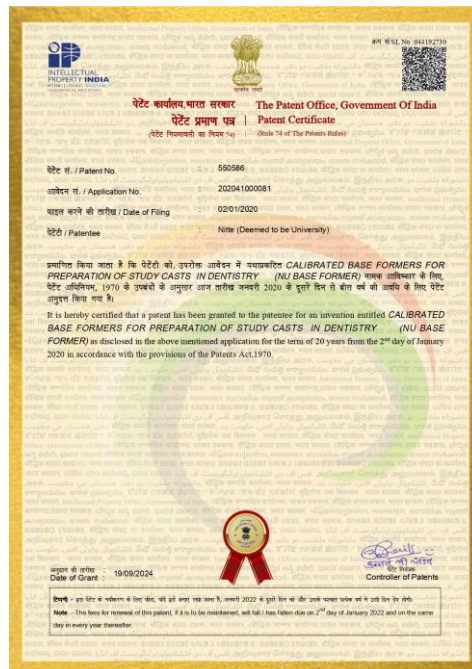
ICAR Central Marine Fisheries Research Institute is a premier national Institute working in fields of marine fisheries, taxonomy of marine fish, marine aquaculture, marine fish health, genetics and biotechnology of marine organisms, economics and information sciences. Nitte DU and ICAR-CMFRI signed a MoU on 05 July 2024, agreeing to cooperate in skill-based training education and to bridge the gap between basic and applied research. DST TEC enabled this collaboration, which would pave the way for the development of the scientific relationship between Nitte DU and ICAR-CMFRI to foster translational research and communication for advances in multidisciplinary fields. This program would provide a conducive environment for researchers, students, faculty, fisheries industrialists, and aquaculture enthusiast's to develop networking and seek solutions on a real-time basis. This partnership intends to include activities like manpower training, support and advice to develop projects for funding, conducting collaborative projects, lectures and sharing experience in product development, organizing webinars, joint conferences and symposia, exchanging technical information and knowledge development, and promoting other cooperative activities in the fields of mutual interest.

The MoU exchange took place in the Board Room of Nitte DU between Dr A Gopalakrishnan, Director, CMFRI and Dr M S Moodithaya The Hon'ble Vice Chancellor, Nitte DU on 05 July 2024. Dr Harsha Halahalli, Registrar, Nitte University signed the MoU on behalf of the University. Dr Indrani Karunasagar, Director Projects and DST TEC; Dr Praveen Kumar Shetty, Director Research & Development, Dr Grinson George, Head of Division of Marine Biodiversity and Environment management and Dr Sujitha Thomas, Officer in Charge, Mangalore Regional Center of CMFRI and DST TEC staff were present on occasion.

Before signing the MOU, Dr A Gopalakrishnan, Director ICAR-CMFRI, Dr Grinson George, and Dr Sujitha Thomas, visited the DST Technology Enabling Center and Dr Gopalakrishnan gave a presentation on ICAR-CMFRI its inception, mandates and on-going projects. Faculty and students of NUCSER attended this talk.



Grant of two patents facilitated by DST TEC



The DST-TEC Nitte DU is happy to announce a remarkable milestone in fostering technology.

Dr Ravi M.S, Dr Nithin Kumar, Dr Murali P.S, Mr Aneesh Jose, Dr Jacob Thomas and Dr Harnoor Dhillon from A B Shetty Memorial Institute of Dental Sciences have been officially granted a patent for their innovative invention: “Calibrated Base formers for preparation of Study casts in Dentistry (NU Base Former),”

Dr Rajmohan Shetty, Dr Amita Hegde and Dr Joseph John from A B Shetty Memorial Institute of Dental Sciences have been officially granted a patent for their invention: Modified reverse twin block with the applied force for dental (intraoral myofunctional) correction in skeletal class III malocclusions.

The whole process of preparing and filing patent application, replying to First Examination Report, attending Hearing and submitting written response to objections was facilitated by DST TEC, Nitte DU. DST TEC extends its heartfelt congratulations to the inventors on this significant achievement and looks forward to the positive impact of the unique finding on the scientific community and beyond.

DST NUTEC conducts workshop at Tumkur University on “Enabling translation of research into technologies”

19 August 2024



DST Technology Enabling Centre, Nitte DU delivered a Workshop on “Enabling translation of research into technologies” at Tumkur University, Tumkur on August 19, 2024. The Workshop held at Sir M Vishweshwaraya Auditorium, was inaugurated by Prof. M Venkateshwaralu, Vice Chancellor, Tumkur University. Smt Nahida Zam Zam, Registrar was also present. In his inaugural address, Prof. Venkateshwaralu appreciated the efforts of DST Technology Enabling Center to reach out to faculty and students of Tumkur University, which is making strides and has found a place among top 100 State Public Universities in NIRF 2024. He emphasized the need to promote technology development and Startup culture among faculty and students of Tumkur University.

During the Technical Session, Dr Iddya Karunasagar gave a talk on “Enabling scientists to move from ideation to commercialisable technologies” and another talk on “Protecting intellectual property through patents”. The first talk covered the process of mapping research findings, assessing their technology readiness level and facilitating moving up from TRL 2/3 to higher levels of industry-ready technologies. The second talk covered identifying patentable products and processes and steps in the patent process. Both these talks were followed by discussion session where the faculty sought number of clarifications on the patent process and on technology development stages. Dr Indrani Karunasagar gave a talk on “Funding support for technology development”. She explained about different funding support from Biotechnology Industry Research Assistance Council (BIRAC) and Technology Development Department of DST. She offered help to Tumkur University faculty in developing good proposals to be submitted to BIRAC. Dr P B Suresh, Dean, Research coordinated the meeting and proposed the vote of thanks. The workshop was attended by about 50 faculties from different disciplines. The faculties desired more support from DST TEC Nitte University in developing, patenting and commercializing technologies.

DST NUTECH conducts workshop at Gulbarga University “Enabling translation of research into technologies”

23 September 2024

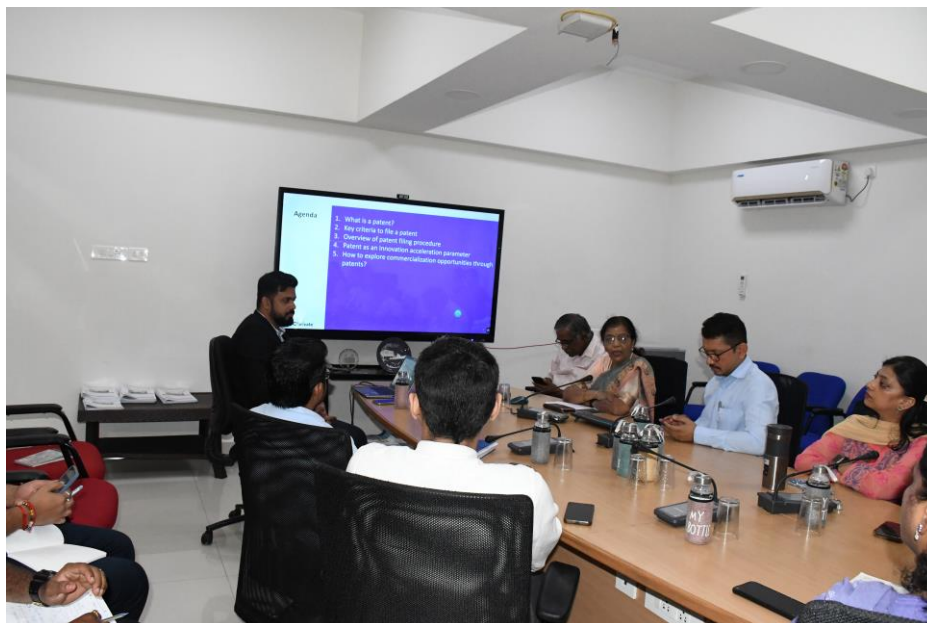


Nitte DST Technology Enabling Center organized a Workshop on “Enabling translation of research into technologies” at Gulbarga University, Kalaburgi, Karnataka on 23 September 2024. The resource persons were Dr Iddya Karunasagar and Dr Indrani Karunasagar. Prof. R L Raibagkar, Senior Professor, Applied Electronics was the Coordinator for the event and Dr Vijay Kumar, Professor of Zoology was the Co-Coordinator. The Workshop was inaugurated by Dr Dayanand Agsar, Hon’ble Vice Chancellor, Gulbarga University. In his address, Prof. Agsar emphasized the need to use science and technology to address local problems and hoped that the workshop would give impetus for more faculty to find technological solutions to the problems of the local community related to Agriculture and other day-to-day issues such as water, soil and environment pollution. Dr G M Vidyasagar introduced the resource persons. Dr Iddya Karunasagar gave a talk on “Enabling scientists to move from ideation to commercialisable technologies” , and Dr Indrani Karunasagar explained about funding support available from different agencies to support staff and students at various stages of the technology development process. Dr Iddya Karunasagar tried to demystify the process of intellectual property protection and with some practical examples, illustrated the process of obtaining patents for the inventions. He also explained about the Startup ecosystem in India, policy and funding support that faculty and students could avail to launch their startups through various programmes of the Government especially for aspirational districts.

Professors from different schools of science such as Prof. Kerur, Prof. Naduvinamane, Prof. V M Jali, Prof. Hanigodi Mata, Prof. Chandrakanth Kelamane, Prof. Sujatha, Prof. Sulochana, Prof. Anand Nayak, Prof. Prakash Karyajjanavar actively participated and clarified many points through discussion. Faculty from several affiliated colleges attended the workshop with over 60 faculty and student participants.

Workshop on “Derwent Innovation Patent Intelligence Tool” by Clarivate analytics

07 August 2024



A workshop on the Derwent Innovation Patent Intelligence Tool was organized on 07 August 2024 at 10.30 am, enabled by DST TEC. Mr Abhijeet Patil, Senior Business Solution Consultant from Clarivate South Asia and South East Asia was the resource person. Prof. Dr Indrani Karunasagar, Director (Projects & DST-TEC), Nitte DU, welcomed the gathering and introduced the speaker to the gathering. She highlighted the importance of a “prior art search” before preparing a patent application and the availability of tools for performing this search.

The speaker, Mr Abhijeet Patil began the session with a brief presentation on what a patent is and the importance of patent protection of inventions. He also briefed about the parts of a patent like patent number, filing number, publication date, etc. He also focused on key patent criteria, such as novelty, invention, and industrial application. He explained the procedure of patent filing and also demonstrated the use of the Derwent patent intelligence platform using examples from the audience, which helped the audience better understand and use the tool. He explained about ThemeScape that analyses data from patents and identifies related research and industries in the domain. This would be helpful for researchers to identify collaborators and also map the industries that may be interested in any technology emerging out of patents. Dr G Srinikethan, President of IIC, Nitte DU, faculties from Nitte Gulabi Shetty Memorial Institute of Pharmaceutical Sciences, Nitte University Centre for Science Education and Research, Nitte Institute of Speech and Hearing and A B Shetty Memorial Institute of Dental Sciences attended the workshop. About 30 participants attended the interactive workshop.

Dr Sanjeev Varshney, Former Head, International Cooperation Division, DST, GoI addresses participants on “How to Enhance International Collaboration”

30 August 2024



DST TEC organized a session of presentation and discussion on funding opportunities for international collaboration on 30 August 2024 at 3.30 pm. Dr Sanjeev Varshney, Former Head, International Cooperation Division, Dept. Science & Technology; Government of India was the resource person. The speaker began the session with a presentation covering Scholarships and Fellowship Avenues, for students and teachers. He briefed about the basic differences between scholarships and fellowships and elaborated the criteria for the same. He then listed out various scholarships and fellowships that are supported by both the government sector and various industries that UG, PG and research students could avail. He also explained about research fellowships for Indian citizens.

In his presentation on the overview of International scientific cooperation and DST Schemes, he explained the need for collaboration in scientific research and made suggestions on how to make collaborations work successfully with win-win situations for both the collaborating parties. He elaborated on the aims and objectives of International collaborations and presented details of India’s Inter-governmental Science and technology arrangements with other countries globally. He pointed out various models adopted for international collaborations like capacity building, technology synergy, technology diplomacy, technology development, creation of innovative platforms and creation of joint research funds. Dr Syed Riyaz Ahmed, Deputy Director of International Relations, Nitte DU, Dr Sashindran, Director, Postgraduate Studies, K S Hegde Medical Academy (KSHEMA) and faculty from Nitte University Centre for Science Education and Research, Canara Engineering College, Mangaluru attended the workshop. About 10 participants attended the interactive session.

DST NUTEC support to patent application and granting (Jan to Sep 2024)

Support provided for hearing				
Application number	Title	Institution	Support provided	Current status
202041000081	Calibrated Base formers for preparation of Study casts in Dentistry	ABSMIDS	Responding to hearing and submission of written response	Granted
202141032032	Modified reverse twin block with applied force for dental (intraoral myofunctional) correction in skeletal class III malocclusion	ABSMIDS	Responding to hearing and submission of written response	Granted
201941022563	Elbow Guard to prevent thumb/finger sucking habit in children.	ABSMIDS	Responding to hearing and submission of written response	Under examination
202041055583	Periodontal temperature probe	ABSMIDS and NMAMIT	Responding to hearing and submission of written response	Under examination
Support provided for publication and complete specification				
202341078762	Insect repellent formulation using <i>Premna serratifolia L.</i>	KSHEMA	Publication, submission of request for examination	Under examination
202341031168	Automised geotagging of flora for scientific and commercial applications	NUCSER	Submission of complete specifications	Under process for publication
202341078763	Process for increasing bioavailability of asiatic acid useful in the treatment of early stages of Alzheimer's disease	NGSMIPS	Publication, submission of request for examination	Under examination
202441001346	Unique primers for the detection of Tilapia Lake Virus using reverse transcriptase polymerase spiral reaction	NUCSER	Submission of complete specifications, Publication	Published, under examination
202441001756	Unique primer sequences for the detection of <i>Shigella</i> spp by loop-mediated isothermal amplification	NUCSER	Submission of complete specifications, Publication	Published, under examination
202441005689	Process of the specific detection of dermatophytes using specific amplification of subtilisin gene	NUCSER	Submission of complete specifications, Publication	Published, under examination
202441005687	Oligonucleotide primers for the specific detection of dermatophytes by isothermal amplification	NUCSER	Submission of complete specifications, Publication	Published, under examination
202441026419	Cell based assay for the detection of a diagnostic biomarker – Myelin Oligodendrocyte Glycoprotein antibody (MOG-IgG)	KSHEMA	Submission of complete specifications, Publication	Published, under examination
202441027576	Solubility and bioavailability enhancement of iproflavone by nanotechnology	NGSMIPS	Submission of complete specifications, Publication	Published, under examination
202441027575	Formulation of outer membrane protein nanovaccine medicated feed for oral vaccination in zebrafish	NUCSER	Submission of complete specifications, Publication	Published, under examination
202441058748	Bilayer scaffold combining gelatin, hyaluronic acid and copper nanoparticles created by electrospraying over polydopamine coated titanium implants	ABSMIDS, NITK	Submission of complete specifications	Published, under examination
202441001167	Portable work station for oral cancer screening and detection at community level	ABSMIDS	Submission of complete specifications, Publication	Under examination

To date 70 patent applications have been supported by DST NUTEC

Inauguration of Karavali Startup Program

12 September 2024



The AIC Nitte Incubation Centre and the Institution Innovation Council of Nitte DU, in collaboration with Young Indians, MRPL and Canara Bank, launched the 'Karavali Startup Program' to empower young entrepreneurs, help nourish ideas and innovation in the coastal region. The event was held at the Ocean Pearl Hotel on September 12, 2024 and DST NUTEC was an active participant.

This program included participation of students, research teams and early or idea-stage startups with innovative concepts. Individuals from the Karavali districts interested in pursuing entrepreneurial ventures were also encouraged to apply. Business ideas were submitted by individuals or teams from September 12 to October 15, 2024. Submissions included demonstration of technical and commercial feasibility, originality and potential for economic or social impact. All participants were encouraged to attend a knowledge-sharing session led by experts. The top 100 shortlisted teams were invited for a four-day Boot Camp. The top 30 teams entered a pre-incubation program, and the top 20 teams advanced to the Karavali Incubation Program. The AIC planned to support eligible start-ups with 25 Lakh rupees seed funding during the incubation phase. This initiative represents a significant step toward establishing Karavali as a global hub for innovation and entrepreneurship. The event included the launching of a product A portable tinkering lab by Experimind Labs. The event concluded with a vote of thanks by Dr Srinikethan, President IIC, Nitte DU.



30 Aug 2024: Discussion with Director of Research and faculty from Fr Muller Medical College on help with IPR for a medical device.



16 Aug 2024: Support to local startup through discussion on proof of concepts related to the technology of making paper from cow dung preparation and to help with project application of BIG grant



Dr Iddya Karunasagar and Dr Indrani Karunasagar were invited for a FAO Expert Meeting on Fish - Vet + Dialogue II: One Health and Biosecurity and International Conference on “Aquatic organism health - to vaccinate or not to vaccinate” organized by FAO at Rome, Italy, 18-20 June 2024. Dr Iddya Karunasagar delivered a talk on “Foodborne AMR – optimizing genomic resources for mitigation of AMR” and Dr Indrani Karunasagar moderated Session 1: One Health, AMR, zoonosis, fish safety and fish welfare. She delivered a talk on “Oral nano-vaccines: Emerging technology against *Aeromonas* infection”. These meetings were attended by a representative of Gol, Dr J K Jena, Deputy Director General, Indian Council of Agricultural Research (ICAR) and two technical officers, Dr Pawar and Dr Poonam, from the Ministry of Fisheries, Government of India.



Dr Indrani Karunasagar has been nominated to the Global Expert Electronic Group for the development of guidelines for antimicrobial use in aquaculture during March 2023. She was invited for a physical meeting of the expert group in Paris from 11-14 June 2024 where in the draft of the guidelines prepared were discussed in detail by the expert members of the World Organization of Animal Health (WOAH), Paris.

Providing support to the Trade Facilitation Office (TFO) Canada-funded project in Jakarta, Indonesia



Dr Iddya Karunasagar was invited by Trade Facilitation Office, Canada to support the project “Enhancing risk management of seafood import control and inspection system of Indonesia” for the Strategy development workshop, August 5-7, 2024. Dr Iddya Karunasagar’s inputs for this workshop related to international best practices in import control risk assessment and the international guidelines from the World Organization for Animal Health (WOAH) and the Codex Alimentarius Commission the Joint FAO/WHO international standard setting body. Based on the advice provided previously, the Ministry of Fisheries had introduced regulation for improving the risk management protocols. During the Workshop, the officers from Indonesian quarantine services presented the lessons learnt during the project and experience gained by international study tour and audit visits. Dr Iddya Karunasagar provided advice on the way forward and actions needed to make further improvements in import control system.



25 September 2024: Dr Iddya Karunasagar and Dr Indrani Karunasagar delivered a workshop on the commercialisation of patents and innovations at Nitte Meenakshi Institute of Technology (NMIT) and Nitte College of Pharmaceutical Sciences (NCOPS) in Bangalore on 25 September 2024. A number of technologies that are available with NMIT at different Technology Readiness Levels and the support needed to transfer them to industry through DST TEC were discussed. Detailed discussions were held with NCOPS, and explanations were provided on how the faculty could connect with DST TEC to improve multidisciplinary collaborations needed for the development of technologies by NCOPS faculty.



26 September 2024: The Karnataka Science and Technology Academy organized a National Conference on “Blue Revolution for Sustainable Fisheries Development” at KSTA, Bangalore, September 25-27, 2024. On invitation from Dr A M Ramesh, Chief Executive Officer, KSTA, Dr Iddya Karunasagar delivered a talk on “International Trade in Seafood Products”, and Dr Indrani Karunasagar delivered a talk on “Antimicrobial Resistance in aquaculture – implications and mitigation strategies” on September 26, 2024. Over 100 participants attended these lectures.



Chairing ICMR expert committee on foodborne disease surveillance, Shillong, Meghalaya

13-14 September 2024

Dr Iddya Karunasagar chaired the ICMR Expert Committee on foodborne disease surveillance that reviewed the progress of the project in the North East in Shillong, 13-14 September, 2024. Members of the Expert Committee included Dr Rama Chaudhury from All India Institute of Medical Sciences, New Delhi; Dr Prabodh Borah, Director of Research, Assam Agricultural University; Dr Sunita Grover, Rtd Principal Scientist, National Dairy Research Institute, Dr S Barbuddhe, Director, ICAR National Research Center for Meat; Dr Kavita Lole, Scientist G, National Institute of Virology, Dr Sabu Thomas, Director, Center for Excellence in Microbiomes. The meeting was held at the North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong, Meghalaya. Principal Investigators from Assam, Meghalaya, Tripura, Mizoram, Sikkim, Manipur, Nagaland, Arunachal Pradesh, National Institute for Research on Bacterial Infections, Kolkata and Center for Development of Advanced Computing (C-DAC), Kolkata presented the progress of work. The meeting provided several recommendations for the Principal Investigators to improve the output in the project.



Delivering an invited talk at Royal Global University, Guwahati, Assam

16 September 2024

Dr Iddya Karunasagar delivered an invited lecture at the Symposium on "Food Safety and Health" organized by the Department of Food Technology, Royal Global University, Guwahati, Assam on September 16, 2024. Dr Iddya Karunasagar spoke about international regulations and food safety standards from joint FAO/WHO Standard setting body, Codex Alimentarius Commission. He elaborated on the World Trade Organization (WTO) Sanitary and Phytosanitary (SPS) Agreement and the international standards recognized by this agreement. He illustrated the process of developing standards based on scientific risk assessments carried out by Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment (JEMRA). He elaborated on the risk analysis process involving risk assessment, risk management and risk communication. Dr Sabu Thomas, Director, Center for Excellence in Microbiome Research, Trivandrum spoke on the ongoing work on microbiomes and their importance in health. Dr Pranita Das, Head of the Department of Food Technology, coordinated the symposium.



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