

विद्ययां तन्त्राग्यायानं अनुवादानं

DEPARTMENT OF SCIENCE AND TECHNOLOGY

NITTE UNIVERSITY TECHNOLOGY ENABLING CENTRE



DST NU-TEC Chronicle | June to Sept 2023

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Official launch of FAO Reference Centers, Rome

26 June 2023

FAO has designated four institutions globally as FAO Reference Centers for Antimicrobial Resistance and Aquatic Biosecurity; two in China, one in USA and one in India at Nitte (DU), Mangalore. The official launch of these centres took place on 26 June 2023 at the FAO Headquarters, Rome. The program was webcasted in all the six UN languages (Arabic, Chinese, English, French, Russian and Spanish). The Keynote speech on behalf of Nitte management was delivered by Pro Chancellor Mr. Vishal Hegde (online). The Indian Ambassador to Italy along with Ambassadors from China and the US were present to witness the launch.

Dr. Indrani Karunasagar and Dr. Iddya Karunasagar represented Nitte University. The following are the additional dignitaries from the designated centres and FAO representatives: Dr. Melba B. Reantaso, team leader, Ms Maria Helena Semedo, Deputy Director General, FAO; Dr. Keith Sumption Chief Veterinary officer FAO; Mr. Mannel Barange, Director, Fisheries and Aquaculture Division, FAO; Dr. Audun Lem, Director Director, Fisheries and Aquaculture Division, FAO; Dr Mark Keenum, President, Mississippi State University, Mr Xiangming Lin, Vice President, Chinese Academy of Fisheries Science (CAFS), Ms Wang Qing, Division Director, Pearl River Fisheries Research Institute CAFS; Mr Zhang Qingli, Division director, Pearl River Fisheries Research Institute, CAFS.





Meeting on Patent Commercialization

21 Aug 2023

A meeting of patent applicants of Health Sciences Institutions of Nitte University was held on 21 Aug 2023 at Chintana Hall, KS Hegde Hospital, Mangalore. About 20 patent applicants attended the meeting. Dr. Indrani Karunasagar, Director, DST TEC welcomed all the participants and highlighted the need to commercialize patents. Dr. M.S. Moodithaya, Vice Chancellor emphasized that this meeting was to create more awareness about business possibilities of intellectual property and the need to demystify this among academicians. He explained types of Companies that can be formed – proprietary, partnership, private limited and public limited. He urged the patent applicants to make use of the facilities. Dr. Iddya Karunasagar explained about the policies of the University - Intellectual Property Rights and Technology Policy and Startup and Entrepreneurship Policy and how faculty could take advantage of the provisions. The participants asked for clarifications on the steps to avail pre-incubation and incubation facilities at Atal Incubation Center, Nitte. There was also discussion on the process of technology transfer to established companies. Dr. Iddya Karunasagar gave examples of technology transfer agreements executed previously and non-disclosure agreement before discussions about technology. Dr. Srinikethan spoke on behalf of AIC Nitte and the present status of incubatees. He highlighted the need to have more faculty from Nitte institutions to avail incubation and seed fund facility at AIC Nitte.



CREATING AWARENESS ABOUT FOOD SAFETY STANDARDS - NITTE UNIVERSITY ORGANISES WORKSHOP TO MARK WORLD FOOD SAFETY DAY 2023

07 June 2023



The United Nations has declared 07 June as World Food Safety day to highlight the importance of food safety and the role of players in food chain – from primary production to consumption or from farm to plate. The theme of World Food Safety Day 2023 is “Food standards save lives”. To create awareness about food safety standards and improve the understanding about these in the industry, Nitte DST Technology Enabling Center, in collaboration with the Confederation of Indian Industries (CII), Kanara Chamber of Commerce and Industries (KCCI) and Food Safety and Standards Authority of India (FSSAI) organized a Workshop on “Understanding food safety standards” at Ocean Pearl Hotel, Mangalore on 07 June 2023. The workshop was attended by over 70 participants including food business operators, small scale producer organization and academia. Inaugurating the workshop, Prof. Dr. M.S. Moodithaya, Vice Chancellor, Nitte University highlighted the impact of food processing and out eating habits on food safety. Mr. Ananthesh Prabhu, Vice President, KCCI indicated that the workshop meets the request from food industries in the region. Dr. Divya Suresh from FSSAI spoke about the need to create awareness about food safety standards and processes to meet these standards.

In the technical session, Dr. Debabrata Kanungo, former chairman of FSSAI Scientific Panel on Pesticide Residues explained about the scientific process of food safety risk assessment with respect of food additives, contaminants, toxins and pesticides. He elaborated on the functioning of international risk assessment bodies like Joint FAO/WHO Expert Committee on Food Additives (JECFA) and Joint meeting on Pesticide Residues (JMPPR). Dr. Iddya Karunasagar, former Chairman of FSSAI scientific Panel on biological hazards explained about microorganisms in foods and the scientific basis for setting microbiological standards. He elaborated on the need to follow good hygienic practices and HACCP to produce food meeting the standards. He also gave examples of microbiological standards in Codex Alimentarius Commission and the risk assessments carried out by the Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment (JEMRA).

The discussions were moderated by Dr. Indrani Karunasagar. She connected the deliberations of the workshop with the theme of World Food safety Day 2023 and emphasized on the need to understand the basis for food safety standards and the best practices that food business operators from farm to plate need to follow to comply with the standards. The discussions covered improving food hygiene and food safety in all segments of the food industry including street vendors, quality control, certifications and accreditations required by food testing laboratories. Dr. Krishna Kumar, MD CAMPCO informed the participants about food handler training being conducted by CAMPCO at the chocolate factory in Puttur. The meeting ended with vote of thanks to all the resource persons and participants.

STARTUP NITTE -23

04 Sept 2023

The Inaugural ceremony of Startup Nitte was organized on 04 Sept 2023. Dr. Iddya Karunasagar, Advisor (Research and Patents) in his opening remark explained the need of start up initiative in fostering innovation, economic growth, and societal development. Dr. AP Achar CEO, AIC, Nitte, outlined the process of startup program. He provided specifics on the numerous grants, selection processes, and types of support provided at each stage. Prof Dr. MS Moodithaya Hon'ble Vice Chancellor, Nitte (DU) explained how Nitte fraternity could avail support to accommodate their startup venture along with their routine work schedule at institute. Shri Thaneshwar Singh, Co founder Lentra Business Solution Pvt Ltd was the guest of honor. He discussed about various sources of obtaining fund and encouraged everyone no matter how small or big the idea is to take chance and convert their startup ideas and establish business. Dr. Srinikethan motivated the audience to submit their startup ideas to make the best use of the opportunity that is specially created to support Nitte group.

Young entrepreneurs development program 'STARTUP-NITTE' was developed by Atal Incubation Centre, Nitte, Institution Innovation Council and NU-TEC to provide a platform for students and faculty members of Nitte (DU) to build startup around the research projects developed. The process of the program is as follows

Orientation program: 3 hour knowledge sharing session

Business Idea Conclave: The top 100 shortlisted ideas will be presented to team of experts in the business idea conclave

Boot Camp: The top 25 shortlisted teams will be selected for the pre-incubation support

Matching Grant : Grant up to 5 lakh will be provided to selected participants develop prototype

Incubation Program: The top 15 shortlisted ideas will be part of the incubation program seed fund support.

Registration Start Date 4th September 2023	Scan To Register Now or Visit www.aicnitte.com	
Registration End Date 30th September 2023		



Lecture on “A glimpse of cardiology research: Cyclophilin A as a risk biomarker in diabetic patient with CVD”

27 Sept 2023

DST Technology Enabling Centre, in association with KSHEMA organized a guest lecture on “A glimpse of cardiology research: Cyclophilin A as a risk biomarker in diabetic patient with CVD” on September 27, 2023 at 10.00 AM at Chintana Hall, JKSHCH. Dr. Ajit Mullasari, a renowned cardiologist, Director- Cardiology, Madras Medical Mission Chennai, was the invited Speaker. Dr. Indrani Karunasagar, Director DST TEC welcomed the gathering and explained the importance of clinical research. Dr. Ajit Mullasari described his research journey in the area of cardiovascular diseases. He explained the potential role Cyclophilin A as a biomarker in predicting the vascular disease in inflammatory condition like diabetes. He stressed the clinicians to actively participate in research activities as they are well aware of practical problems at the clinical setup. He discussed on his personal experience in strengthening the emergency response system in the rural areas. The program concluded with an interactive discussion session.



MoU between Nitte University and Kakunje Software, Mangalore

09 Aug 2023

Nitte University and Kakunje Software have signed MoU agreeing to co-operate in development of medical devices and other mutually important technologies. This collaboration was enabled by DST TEC. With support from DST TEC, Dr. Anupama Prasad and Dr. Krishna Prasad from Department of Prosthodontics, A B Shetty Memorial Institute of Dental Sciences (ABSMIDS) in collaboration with Kakunje Software have developed a non-invasive device for detection of muscle pain using a novel surface electromyography (EMG). A patent for this technology is in process and the patent application was published in Patent Journal in July 2023. MoU exchange took place in the Board Room of Nitte University between the Vice Chancellor, Dr. MS Moodithaya and Mr. Gopal Krishna Bhat Kaunje on August 9, 2023. Registrar, Dr. Harsha H.; Principal, ABSMIDS, Dr. U S Krishna Nayak; Dr. Iddya Karunasagar, Advisor, Research and Patent; Dr. Indrani Karunasagar, Director Projects and Director DST TEC, Mr. Chethan Chakravarty, Legal Officer, Nitte and Mrs. Aparna Bhat, Kakunje Software were present on the occasion.



The world Entrepreneurs Day was celebrated on 21 August 2023 to recognize the success of entrepreneurs and to motivate researchers and students to take up their ideas to commercialization. On this day Mr. Sathya Shankar and his partner Ms. Ranjitha Shankar, owner of successful organic juice business 'Bindu Jeera' in costal Karnataka were felicitated.



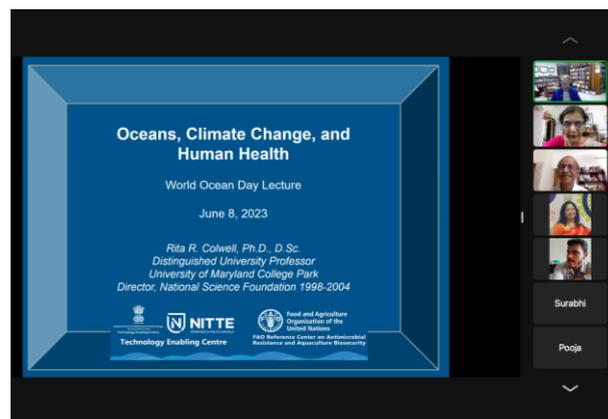
A five days training program on "Microbial Genomics and Metagenomics" was conducted by Nitte University Research center in association with Biokart India Pvt Ltd. from 17 to 21 July 2023. The resource persons were Mr. Vikram S, CEO, Biokart India Pvt. Ltd. and Ms. Helga Jenifer, Senior Bioinformatician, Biokart India Pvt. Ltd.



Lifetime Achievement Award was conferred on Dr. Iddya Karunasagar by the Society for Chemical and Synthetic Biology at the Annual Session at PSG Institute of Technology on 01 Sept 1, 2023.

World Ocean Day Lecture

8 June 2023



The Food and Agricultural Organization of the United Nations and Technology Enabling Centre Nitte (DU) jointly organized a webinar on ‘Ocean, Climate Change and Public Health’ as a part of the Ocean Day celebration on 8 June 2023. Prof. Dr. Rita R Colwell, Former Director of the National Science Foundation and distinguished University Professor at the University of Maryland, USA, delivered the guest lecture. The objective of the webinar was to raise awareness about the crucial role of ocean and how climate change impacts the microbiome in human health and diseases. Students and faculties had an opportunity to acquire new insights to recent advancement in predictive microbiology with regard to burning issue of climate change.

Prof. Dr. MS Moodithaya, Vice Chancellor Nitte (DU), gave the opening remarks. Prof. Dr. Indrani Karunasagar, Director of DST NU-TEC & Projects, introduced the speaker to the audience. Prof. Dr. Rita Colwell, in her presentation, spoke on various aspects of predictive microbiology. She explained the microbiome profile of water investigated through high-end techniques like real-time and metagenomics and the association of these data in predicting various microbial infections. She provided relevant examples of how hurricanes, global warming, and other climate changes impacts *Vibrio* outbreaks, as examined by numerous studies. A panel discussion has followed the lecture. Prof. Dr. Iddya Karunasagar moderated the entire session. Altogether 201 participants including staffs researchers and students took part in the webinar.

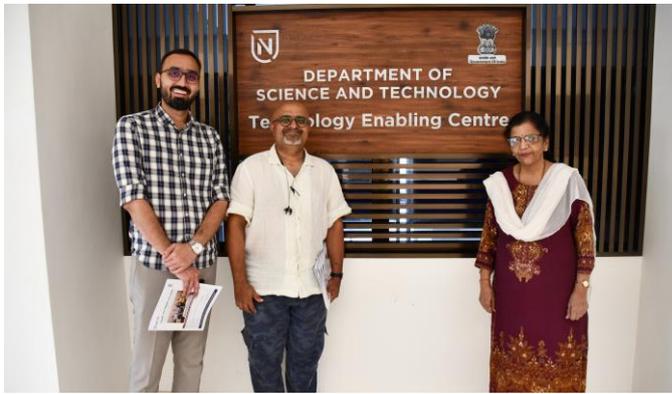
A lecture programme on “Innovation to Start-up”

07 July 2023



DST technology Enabling Center, in association with A B Shetty Memorial Institute of Dental Sciences (ABSMIDS) and Institution Innovation Council (IIC) organized a Lecture Programme on “Innovation to Startup” on July 07 at 10.00 AM at Avishkar Hall. Dr. Vivekanand Kattimani, Professor of Clinical Research and Professor of Oral and Maxillofacial Surgery, SIBAR Institute of Dental Sciences was the invited Speaker. About 150 participants including faculty and students from different disciplines attended the lecture. Dr. Indrani Karunasagar, Director, DST TEC welcomed the guests and provided an overview of DST TEC activities. Dr. Iddya Karunasagar, Advisor (Research and Patent) explained the Nitte University Policy on Intellectual Property Rights to protect innovations and support available from DST TEC for applying for patents, scaling up from idea to proof of concept, prototype, validation and commercialization. He also explained about Nitte University Policy on Startups and encouraged faculty and students to come forward to setup Startups. Dr. U.S. Krishna Nayak, Principal, ABSMIDS in his presidential address urged faculty and students to take their innovative ideas forward and learn from the experience of Dr. Vivekanand. Dr. Padmaraj Hegde, Head of Oral and Maxillofacial Surgery introduced the speaker, Dr. Vivekanand Kattimani.

The lecture by Dr. Vivekanand was very interactive and he explained about product and product performance innovation, technology innovation, process innovation, business model innovation, organizational innovation, marketing/sales new channel innovation and network innovation. He elaborated that innovation can be incremental, architectural, disruptive or radical. Dr. Vivekanand gave example of ideation and idea generation, evaluation of the ideas, testing, experimenting and reaching minimum viable product, optimization and scaling. He provided a number of tips for enhancing innovation. Further, he explained about innovations that have gone into smart medical devices. He then outlined his journey in developing bone graft substitute from egg shell hydroxyapatite. He started with small funding from DST and the work done helped him get Biotechnology Ignition Grant after few attempts where he missed narrowly. He explained how translational work was carried out to move from Technology Readiness Level (TRL) 3 to current level of 6/7 with collaborations from number of institutions in India and how he is chasing the dream of commercialization of the product. The talk was highly motivating and inspirational. Dr. Praveen Kumar Shetty, Director, R & D thanked the speaker and participants for their active involvement in the interactive session.



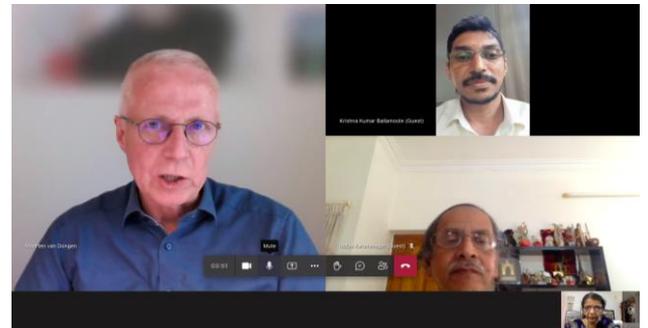
21 June 2023: Mr. Anand Kannan, National Director, International Federation of Inventors Association (IFIA) & Mr. Vishwas Rao Regional Director IFIA visit TEC to discuss on the translation of technology.



13 June 2023: Interview for the Aries Doctoral Training Project, University of Plymouth, UK. PI Dr. Lucy Turner, Co Investigators Dr. John Spicer, Dr. Roweena Stern & Dr. Indrani Karunasagar.



03 June 2023: Meeting with Dr. Jitendra Singh Aquaagri to discuss the internship of marine Biotech students at seaweed facility at Manamadurai.



09 June 2023: DST TEC enabled meeting of Maarten Van Dongen with Dr. Krishna Kumar B related to AMR and future of antibiotics.



13 Sept 2023: Team from Experimind lab discussed about their product on teaching aid for the market study.



16 June 2023: Visit of Dr. Jayasheelan, Head of Biological Science & Dr. R Premkumar, Registrar SRM University, Andra Pradesh to DST TEC facility to have discussion and collaboration in the area of AMR.



Ms. Parnika Pavanram, General Manager (Biotechnology), Karnataka Innovation and Technology Society, Government of Karnataka visits TEC facility for discussions regarding incubation and project formulation related to women empowerment in fisheries research.



22 June 2023: An interactive meeting was held with Mr. Giridhar Prabhu, CEO Achal group of Industries and Dr. D. Balasubramanian Principal Scientists, ICAR, DCR. To discuss about cashew related projects.



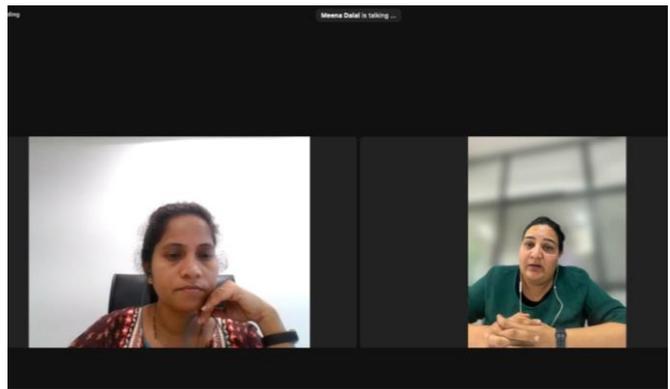
19 August 2023: Mid term evaluation of CAMPCO funded project on areca nut its effects on oral biology. Results are presented by the groups led by Dr. Anirban Chakraborty, Dr. Sudarshan Kini, Dr. Praveen Rai & Dr. Anurag Sharma.



4 July 2023: Discussion on Vaibhav application to be submitted by Dr. Vinod Kumar Magadi with Dr. Praveen Rai, Indian counterpart @NUCSER. This project on Dengue virus was initiated at DST TEC.



11 July 2023: Discussion on collaborative project between Radboud University Scientist, Dr. Mihai & Dr. Vinod Kumar Magadi on looking at WGS of Dengue patient population for variation in the genetics of virus in different geographical locality.



Society for Innovation and Entrepreneurship (SINE), IIT Mumbai in collaboration with **DST TEC**, **Nitte** and other ecosystem partners organized a guidance session for potential applicants of BIRAC **BIG**, 25 July 2023. Dr. Indrani Karunasagar was a panelist.

Nitte University DST TEC to mentor students for participation in Anveshan 2023

Anveshan, is a student research convention organized by the Association of Indian Universities. This year, Anveshan is being organized in a hybrid mode to enable students from India to collaborate with students from universities overseas. Students from undergraduate to doctoral level can participate and this year, students are to form teams of maximum 4 including at least one student from an overseas University. The team is to prepare a project that will be evaluated based on scientific thoughts and principles, thoroughness, creativity, relevance and cost affectivity. Projects can be prepared in six themes – Agriculture, basic sciences, health sciences, engineering and technology, Social science and interdisciplinary. DST TEC will be able to mentor students in team building, international collaboration and project preparation.

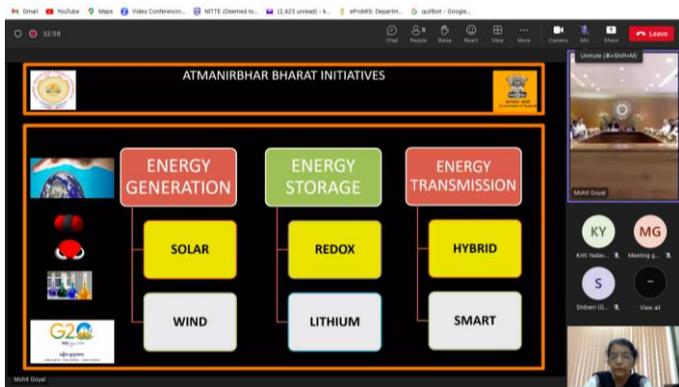
AIU ANVESHAN 2023

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Connecting with other TECs



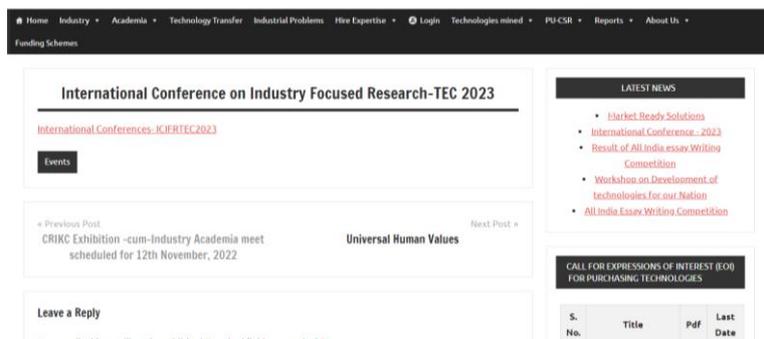
Pandit Deendayal Energy University- PDEU - PAG meeting



University of Hyderabad - PAG meeting



Anna University - PAG meeting



Panjab University –Submission of technologies for the International Conference on Industry Focused Research-TEC 2023



6 July 2023: Dr. Indrani Karunasagar attended second EEG meeting to discuss the distribution of chapters related to AMU guidelines for hatcheries, prescription related to aquatic food.



9 August 2023: Dr. Indrani Karunasagar was invited as a chief guest for the Hands on Training Program on “Molecular techniques for fish and shrimp diseases” under the aegis of National Surveillance Program for Aquatic Animal Diseases (NSPAAD) conducted at CIBA.

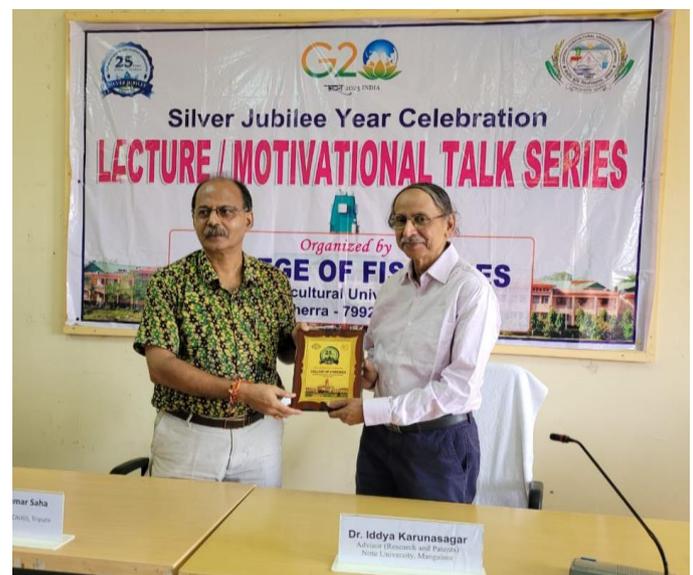
FAO Regional Committee on Fisheries (RECOFI) Workshop on “Enhancing knowledge on Aquatic Animal Health Management and Biosecurity and understanding of antimicrobial resistance in aquaculture, Jeddah, Kingdom of Saudi Arabia, 10-13 July, 2023



Dr. Iddya Karunasagar served as resource person and delivered an online talk on “**Understanding antimicrobial use and antimicrobial resistance in aquaculture in one health framework**”. He highlighted that the aquatic environment receives antimicrobial residues and antimicrobial resistance determinants from human, livestock, poultry and agriculture sectors through waste water, sewage, storm water, sludge, flooding and other sources. Hence, aquaculture would be impacted by antimicrobial use in all sectors. The workshop was informed of the importance to study antimicrobial use (AMU) and antimicrobial resistance (AMR) in one health framework recognizing the interconnection between human, animal, plants and their shared environment. He further noted that AMU AMR surveillance needs to be carried out following the guidelines from international agencies like FAO, WOA and Codex Alimentarius Commission, and that risk analysis as explained in these guidelines could help prioritizing AMU and AMR surveillance.

Delivering Silver Jubilee Lecture at Central Agricultural University, College of Fisheries, Lembucherra, Agartala, Tripura.

Dr. Iddya Karunasagar was invited by the Central Agricultural University, College of Fisheries, Lembucherra, Tripura to deliver the Silver Jubilee Lecture. The Lecture was delivered on 26 September 2023. Dr. Iddya Karunasagar talked about international food safety standards set by Codex Alimentarius Commission and the scientific advice provided by Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment. He highlighted some of the emerging zoonotic pathogens in the aquatic environment. The lecture was attended by the faculty and students of College of Fisheries, Lebucherra, Tripura.



Contributing to capacity building on international standards and guidelines in Indonesia

Dr. Iddya Karunasagar conducted a training programme on best international practices in import of seafoods in Jakarta, Indonesia from September 18-22, 2023. This programme was supported by the Trade Facilitation Office Canada, through a multi-donor funding Alliance. This training focused on World Organization of Animal Health (WOAH) Aquatic Animal Health Code standards on import risk analysis, health certification of aquatic animals and their impact on international trade. The use of WOAH Manual of Diagnostic tests for Animals for testing and certification was also discussed. The capacity building programme follows the support provided earlier on good importing practices and risk categorization based on pathogens affecting aquatic animal health.



Supporting International Trade Center (ITC) of UN training in Malaysia

Dr. Iddya Karunasagar represented FAO Reference Center on Antimicrobial Resistance and Aquaculture Biosecurity and served as resource person, along with Dr. Sylvie Coulon of EU for training on disease management in ornamental fish in Malaysia (Putrajaya, July 18-28, 2023) and on Codex Code of Practice for fishery products in Tawau, Sabah (July 31-Aug 4, 2023). Dr. Iddya Karunasagar provided lectures on Codex standard, Code of practice and World Organization of Animal Health (WOAH), guidelines in aquaculture disease surveillance and import risk analysis. The training in Tawau, Sabah focused on Codex Code Practice for fish and fishery products as a basic requirement for implementing Hazard Analysis Critical Control Point based food safety management.



G20 Technical meeting on One Health - Opportunities and Challenges, TAJ Bangalore, 29-31, Aug 2023.

Dr. Iddya Karunasagar was an invited speaker at G20 Technical meeting on One Health - Opportunities and challenges held at Bangalore and organized by the Indian Council of Agricultural Research (ICAR). The meeting was participated by delegates from US, Canada, UK, Italy, Saudi Arabia, Oman, Spain and others. Dr. Iddya Karunasagar spoke on aquaculture food safety in one health context. He highlighted the importance of biotoxins in fish and fishery products and some of the recently identified zoonotic pathogens transmitted through fish and fishery products.

The logo for the DST Technology Enabling Centre is a central graphic with a dark blue background and a glowing yellow hexagonal pattern. The text "DST TECHNOLOGY ENABLING CENTRE" is written in a bold, yellow, sans-serif font. Surrounding the central text are six hexagonal icons, each with a white outline and a white fill, representing different aspects of the center's work: a lightbulb (Innovation), a handshake (Co-operation), a group of people (Ideation), a gear with a person (Co-ordination), a hand holding a document (Translation), and a network of people (Collaboration). The background also features a silhouette of a person holding a glowing cube.

Department of Science & Technology
Government of India
Technology Enabling Centre

NITTE
(Deemed to be University)

Food and Agriculture
Organization of the
United Nations
FAO Reference Centre on Antimicrobial
Resistance and Aquaculture Biosecurity

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0824-2204211 | dstnutec@nitte.edu.in | www.dstnutec.in
@DstNuteC | @nitte_tec | Dst Nu-tec

Nitte (Deemed to be University), 2nd floor, NIA-NICO building
Paner Campus, Deralakatte, Mangaluru-575018

Editorial Team

Dr Iddya Karunasagar

Dr Indrani Karunasagar

Dr Caroline DSouza

Dr Akshatha K

Mr Anoopkrishna K

Ms Shravya Shetty

Dr Nishith

DST NU-TEC, Nitte (Deemed to be University), Paner Campus, Deralakatte, Mangaluru-575018
dstnutec@nitte.edu.in | www.nitte.edu.in | www.dstnutec.in | 0824-2204211