



# CHALLENGER

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Vo-K 2021 No.01



# 13

KUFOS conducts  
Biofloc training for  
Fisheries Department  
Officials



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## NEW APPOINTMENT

Dr.K.Riji John appointed  
as third VC of KUFOS

Dr.K.Riji John, well known fisheries scientist and noted academician has assumed office as the Vice Chancellor of Kerala University of Fisheries and Ocean Studies ( KUFOS) on January 25, 2021. Governor Arif Mohammed Khan has made the appointment in his capacity as the Chancellor of KUFOS from a panel submitted by State Government . The appointment is for five years as per the section 33 of KUFOS Act. He is the third Vice Chancellor of KUFOS. Dr. Riji John, a native of Kunnamkulam in Thrissur district was serving as the Dean of Fisheries in KUFOS prior to the appointment of Vice Chancellor.

Dr. Riji John was graduated in 1985 in fisheries science (BFSc) from the College of Fisheries, Panangad and completed M.F.Sc from the University of Agricultural Sciences, Bangalore . He took his PhD from the Institute of Aquaculture, University of Sterling, UK in Fish Virology in 1997 under Commonwealth Scholarship programme. He has also completed a Postdoctoral assignment in Fish Biotechnology in the Virginia-Maryland College of Veterinary Medicine (VMCVM) at the University of Maryland by availing FAO fellowship, where he worked on reverse genetics.

Dr.Riji John has started his academic career in 1990 as an Assistant Professor in the Fisheries College and Research Institute, Thoothukudi under the Tamil Nadu Veterinary and Animal Science University, which later on came under the new Tamil Nadu Dr. J. Jayalalithaa Fisheries University (TNJFU). He has been actively involved in teaching, research and extension for the past 29 years and served as Professor in the Department of Aquaculture, Head, Department of Fish Pathology and

Health Management and Chair, School of Aquaculture in the Tamil Nadu Dr J Jayalalithaa Fisheries University.

Dr.Riji John has developed and established new fish cell lines from different tissues of freshwater and marine fishes such as snakehead, tilapia, seabass, clown fish and isolated and characterized new viruses such as Lates calcarifer nervous necrosis virus, koi ranavirus, similar damselfish virus, snakehead rhabdovirus from infected fishes. He has operated research projects including International and National collaborative projects. His team has reported the genotyping of WSSV and genomic and pathogenicity variations in WSSV due to passaging.

Dr Riji John has served in different national and international bodies such as Member of the Task Force of DBT, Govt. of India for two terms; President, Professional Fisheries Graduates Forum; Member of the Expert Group, Ministry of Agriculture, GOI; Observer, Executive Committee of the Fish Health Section, Asian Fisheries Society among others.

He has also acted as Member of different University bodies such as Academic Council, Research Council, Extension Council, Board of Studies etc. He has over 120 publications as research papers in national and international journals, books and book chapters , research notes and abstracts in national and international conferences. He has won awards such as Best Teacher, Best Researcher and also travel grants and best paper awards.

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## Vice Chancellor Prof (Dr)A.Ramachandran passed away

**N**oted fisheries scientist and the second Vice-Chancellor of Kerala University of Fisheries and Ocean Studies (KUFOS) Prof (Dr) A Ramachandran passed away of cardiac arrest in the wee hours of March 27, 2020 at his residents in Kochi. He was 61.

Dr.Ramachandran was elevated to the position of Vice-Chancellor in June 2016, while he was serving as the Director of the School of Industrial Fisheries of Cochin University of Science and Technology (CUSAT). An eminent fisheries scientist, he had also been the fisheries advisor to the Sultanate of Oman and expert member in many national and international fisheries councils and organisations. It was under his leadership that the first-ever International Blue Economy

Congress in India was held in Kochi in November 2019 under the auspicious of KUFOS. Dr Ramachandran had played a crucial role in starting over 20 post graduate courses in KUFOS in various subjects related to Ocean Environment, Coastal Zone Management, Climate Change Studies, Environmental Science and Disaster Management.

Dr. Ramachandran, who secured his Post Doctoral from Delft Technical University in the Netherlands, had published over 300 internationally recognized research papers and authored many books on fisheries and ocean science. A committed academician and scientist, he had guided 135 Ph D students and led many research projects in CUSAT and KUFOS including the recent study on plastic waste menace in Vembanad lake.



He was also a recipient of many national and international awards in the fisheries sector, including Jawaharlal Nehru Fund Award for Academic Excellence 1982, and N Balakrishnan Nair International Environmental Excellence Award (January 2019) from Hawassa University, Ethiopia.

Son of the former Cochin Mayor and Congress veteran late K S N Menon, Ramachandran is survived by his wife Thanooja Rajeswari, Principal of Campion School, Edapally, and his only son, Rahul Ramachandran, who is working as ship engineer in Singapore

## Dr.A.Ramachandran remembered

**D**r.A.Ramachandran, who was the second vice chancellor of KUFOS and a noted fisheries scientist had played vital role in building a quality fisheries education sector in the State, said Prof (Dr) K Riji John. He was inaugurating a memorial meeting organized by KUFOS staff club on the first death anniversary of Dr. Ramachandran, who passed away at the age of 61 on March 27, 2020.

Dr.Riji John said that Dr.Ramachandran was an eminent scholar in Fisheries, Food Technology, and Environment Science, having a deep understanding in the Science of Sustainability. His great vision was to take KUFOS to new heights at global level for which he worked continuously and tirelessly. Dr.Ramachandran will definitely be



*Vice Chancellor Prof (Dr) Riji John inaugurates Dr.A.Ramachandran memorial meeting on his first death anniversary.*

remembered among fisheries academic community as an internationally acclaimed scientist from South Asian region. Registrar Dr. B. Manojkumar presided over the meeting. Dr.K.Gopakumar, Dr.Devika Pillai, Dr.K.P.Subashchandan, Dr.Susamma A.P, Joby George, Dr.Phiros Shah and Dr.Victor George shared memories of Dr.A.Ramachandran on the occasion. Family members of Dr.A.Ramachandran including wife Thanooja Ramachandran and son Rahul Ramachandran were present in the meeting.





## ► FROM THE DESK OF THE VICE CHANCELLOR JUL 2021

**Prof (Dr) K. Riji John**  
Vice Chancellor

KUFOS has completed a decade of existence in the year of 2020. Over this period, the University has seen developments in leaps and bounds with several new infrastructure being commissioned. A new Academic block of Rs. 59.5 crores, equipment worth around Rs. 12 crores in different research laboratories, a renovated fish farm of around Rs. 2 crores are a few examples worth mentioning. Several new initiatives are also planned for the further development of the University. These include new Academic buildings for Rs. 41 crores in the Western campus and in the Main campus for the Faculty of Fisheries Science and for the Faculty of Fisheries Management respectively and a Ladies Hostel in the North-eastern campus for accommodating about 100 girls. A new referral laboratory for the disease diagnosis of aquatic animals for Rs. 9.75 Crores and extension of the fish and shrimp farms for Rs. 8.37 crores are also scheduled to come up in a year's time. A total renovated networking solution in the entire campus is also envisaged for a total budgetary provision of about Rs.3.8 crores.

It has to be admitted that the covid-19 has taken a huge toll on the academics of the University. Online classes have become a norm of the day. Our faculty has been trying very hard to arrange the required practical classes and examinations in a befitting manner of a professional University. Our undergraduate students have successfully completed the Rural Work Experiences and Experiential Learning Programmes amidst these testing times

with dedication and alacrity. Both the BSc and first batch of BTech Food Technology students have completed their degree programmes without any substantial delay. I congratulate all the students who have successfully graduated and thank all the staff members who made it possible during this period. The period also saw our students winning prestigious scholarships of Erasmus Mundus, ISEKI Food Competition etc.

Steps towards a long pending requirement of the University in getting the UGC 12 B status was proficiently accomplished with the relentless work of the team of faculty members culminating in the visiting UGC team recommending 12 B status to KUFOS. This was one of the most cherished dreams of our former Vice Chancellor Late Dr A. Ramachandran. Despite the results of UGC being on the anvil, the University has been recognised by ICAR at 56th position during the year 2020. University plans to start new campuses, new degree programmes in the coming years to comply with the National Education Policy of our country. I place on record our sincere thanks to the Principal Secretary, Fisheries and Vice Chancellor in-charge Smt. Tinku Biswal for her guidance and support during the most part of the last year and especially for spearheading the activities for the UGC recognition.

The State Government has sanctioned a posse of 30 administrative staff during the last financial year and has agreed to consider the long pending need of the university to augment the faculty

strength by doubling the existing number. During the same period, ICAR for the first time identified KUFOS for uplifting the downtrodden section of the SC and ST community of the state by budgeting SC and ST subplans for the University. During the year that was passed, KUFOS had initiated several programmes in collaboration with the Department of Fisheries for creating awareness among the people in the sector and training the farmers, processors and entrepreneurs in various technologies.

At the behest of our Hon. Minister, Shri. Saji Cheriyan, University has taken steps to adopt the Chellanam Panchayath and has been working towards the wholesome development of the Panchayath and the community. In deference to the Hon. Minister, apart from the four Centres of Excellences that are functioning in the University at present, KUFOS is planning to establish at least three Centres of Excellences in the next plan period.

KUFOS is probably the one of its kind not only in the conglomeration of the disciplines that are forged in the faculties of the University, but also in the amalgamation of the three different streams of the education sectors viz. ICAR, UGC and AICTE playing active roles in shaping various activities of the University. This heterogeneity is expected to harness the best from all to create and emerge a strong force of academics, both in the faculty and in the student community in terms of research, extension and sector-oriented technology development for the benefit of the common man.



*Renovated Instructional Fish Farm inaugurated by Minister J. Mercykutty Amma.*



*Mechanical Engineering Work*

## ▶ New Academic Block Inaugurated in KUFOS campus

The new academic block building inaugurated on 28th January 2021 by Hon. Minister for Fisheries, Harbour Engineering and Cashew Industry and Pro Chancellor of KUFOS Smt. J. Mercykutty Amma at KUFOS headquarters is a five-storied load bearing structure with a total plinth area 12855 m<sup>2</sup> in which 2571 m<sup>2</sup> in each floor. It is constructed as phased manner and the work was entrusted with M/s. KSCADC by utilizing the plan funds allocated Rs. 350 Lakhs during 2011-12, Rs. 400 Lakhs during 2012-13, Rs. 400 Lakhs during 2013-14, Rs. 400 Lakhs during 2014-15 and Rs. 400 during Lakhs 2015-16. The sixth phase was build by utilizing NABARD/RIDF FUND amounting Rs. 4000 Lakhs. Hence a total fund of Rs. 59.50 crores is allocated the construction. The first phase includes various labs in the ground floor. The second phase includes

classrooms, staff rooms, stair cabin and toilets spreading in the ground, first and second floors. The third phase includes computer labs, PG laboratories. The fourth phase includes UG labs, toilets, stair cabin etc in ground floor, first floor and second floor. The facilities such as mini conference room, PG classrooms etc are provided in the fifth phase. The sixth phase utilizing NABARD/RIDF FUND amounting Rs. 4000 Lakhs includes classrooms, staff rooms, various labs, toilets, mini conference halls etc. Other infrastructure facilities commissioned on the occasion are - Carpentry Workshop Building (45 lakhs allocation), Renovated Instructional Fish Farm – Phase I (185 lakhs).

Inaugurating the academic block, Fisheries Minister J. Mercykutty Amma said that one year apprenticeship facility for KUFOS students similar to the house surgeency programme of MBBS course will be implemented. She also said that Kerala



should tap possibility of aquaculture in a better way to increase the fish production in a considerable way. M. Swaraj MLA presided over the function. Hiba Edan MP, John Fernandez MLA, District Panchayath President Ullas Thomas, Palluruthy Block Panchayath President K. S. Radhakrishnan, NABARD AGM Asok Kumar Nair were present on the occasion. Kerala State Coastal Development Corporation M. D. Sheik Pareeth and KUFOS Director of Research Dr. Devika Pillai were presented activity reports. Vice Chancellor Dr. K. Riji John welcomed the gathering and Registrar Dr. B. Manoj Kumar proposed a vote of thanks in the function. Minister J. Mercykutty Amma has also laid the foundation stone of the Aquatic Animal Disease Referral Laboratory being constructed in KUFOS Campus by State Government at a cost of Rs. 10 crores.





## ► ICAR-KUFOS programmes for the underprivileged communities

### Scheduled Caste Sub Plan and Tribal Sub Plan Projects

For the first time in history, KUFOS was chosen by Indian Council of Agricultural Research (ICAR) to implement two programmes designed for the development of the underprivileged, Schedule Caste and Schedule Tribe communities of the country. The programmes were formulated as a part of the Sixth Plan by the Government of India to channelize the allotted plan benefits directly to the beneficiaries through various implementing agencies (State Government/ Union Territories/ Government Institutes/Universities) for enhancing and ensuring the effectiveness. It has been envisaged as an 'umbrella policy' to ensure flow of targeted financial and physical benefits from all the sectors of development for the benefit of Scheduled Castes and Tribal communities.

The plan aims to ensure economic, educational and human resource development as well as social security and acceptance of the Scheduled Caste and Tribal communities by achieving equality with the non-Scheduled Caste/Tribe population in a time bound manner. The objective of the programme is to enhance the income of the target group through agriculture, animal husbandry, fisheries and allied sectors.

The total grant received in the last financial year under the SC-SP was Rs. 65 lakhs as two instalments and Rs. 20 lakhs for TSP as a single instalment. In SC-SP, the fund has been allotted under various heads such as Skill development Training centre for SC beneficiaries, Training for livelihood earnings, Livestock for SC clusters, Library for SC students, Tutorial classes for SC students to prepare them for national and international competitions, Entrepreneurship development and capacity building & trainings for the selected beneficiaries. The project was inaugurated by Mrs. Mercykutty Amma, Minister for Fisheries and Cashew Industries, Government of Kerala on 29-01-2021 by distributing fish seed to the SC beneficiaries.

KUFOS obtained this funding for the first time, it was under the component "Scheduled Caste-Sub Plan (SC-SP) and Tribal Sub Plan (TSP)" under the Agricultural Education Division Plan Scheme "Strengthening and Development of Higher Agricultural Education in India" by ICAR during the year 2020-21

Dr. Dinesh Kaippilly, Associate Professor and Head, Department of Aquaculture is officiating as the Implementing Officer of the projects and Dr. Bindhi S Kumar had worked as the Training Associate. The beneficiaries of the projects were selected through the applications received from all over Kerala in response to the



beneficiary calls given in newspapers and website announcements. A fully air conditioned and furnished training centre with all sorts of projection facilities, remains established in the Amenity Centre of KUFOS for organizing SC/ST empowerment programmes in an effective manner. A few facilities under the Department of Aquaculture were upgraded for training the stakeholders in fish culture and allied aspects. The work of a well set up aquarium is in progress to educate the trainees. A few animals are maintained in the Instructional Farm of the Department of aquaculture for training purpose.

Students of KUFOS belonging to the SC and ST communities are selected for these projects and are brought under in a single umbrella of a 'whatsapp' group. All the lectures and empowerment programmes were notified through this group which made the communication easier and deliberations effective. A separate collection of print books and e-resources worth Rs. 20 lakhs, specifically suitable for SC/ST students and beneficiaries remain established under Faculty of Fisheries to support the stakeholders.

A total of 257 beneficiaries were selected from the applications received from the Districts of Kollam, Ernakulam, Thrissur, and Kannur according to the socio-economic background of the stakeholders under SC Sub Plan.

For Tribal Sub Plan, six tribal settlements from all over Kerala were selected. They are: one Kani settlement in Trivandrum, one Ulladar settlement in Ernakulam, two Kadar settlements in Thrissur, one Kudakar settlement in Kasaragod and Paniya and Kattinaikar settlements in Wayanad Districts. Altogether, 137 beneficiaries from various tribal communities were selected for the programme.

Trainings and awareness programmes for the stakeholders were extended effectively in all the SC and ST colonies for empowering them in the concerned fields. Colony to colony, the preference was varying from pond fish culture (Panangad), pen culture (Thayineri, Payyannur), cage culture (Pernigalkuthu Dam), fishing (Mukkampuzha and Pokalappara Colonies), ornamental fish culture (Mathilakam), duck rearing (Ernakulam), chicken rearing (Trichur, Ernakulam), goat rearing (Vithura, Kadankode, Madur), cow farming (Trichur, Ernakulam, Wayanad) and dove rearing (Ernakulam). Prime importance was given to the interest of the stakeholders for the input distribution. The facility available for taking up such activities were assessed by the project team prior to the input distribution.

The Department of English and Foreign Languages, Cochin University of Science and Technology has been entrusted to teach French and Japanese to the SC and ST students of KUFOS. National Academy for Agriculture and Rural Management

(NAARM), Hyderabad remains entrusted with the personality development programme of the students. Along with KUFOS, National Institute of Fisheries Administration (NIFARM), Government of Kerala and Retirees Forum of Matsyafed have been entrusted with training the beneficiaries. Nearly 500 students have obtained the benefit or will benefit through these programmes.

Over thirty virtual lectures were organized

for SC and ST students under the student training programme, however other students were also allowed to participate. The lecture on “The hidden biology of venomous worms” by Prof. (Dr.) Christoph Bleidorn, George August University, Germany and the presentation on “The Fisheries and Aquaculture in Norway” by Dr. Kiranpreet Kaur, Specialist in Salmonids, Norway were much appreciated by the student community.

A virtual website platform containing all the relevant information of the programmes, details of SC/ST colonies and the status of the residents, a few technical manuals, educational movies and documentaries pertaining to the projects are under development.

(Amount received and spent under SC SP: Rs. 65,00,000/-

Amount received and spent under TSP: Rs. 20,00,000)



## ▶ KUFOS set up demonstration Cage Unit at CIAL

The demonstration cage culture unit of pearlspot set up by Kerala University of Fisheries and Ocean Studies (KUFOS) at Golf Club of Cochin International Airport (CIAL), Nedumbassery has become a successful model of cage aquaculture and attracts many farmers. The Extension Directorate of KUFOS has made the demonstration unit on request of the officials of Golf club, Sri., Premkumar.T and Sri. Sunny Joseph who had attended the training programme on “Seed Production and Farming Strategies of Pearlspot” held at KUFOS during October 2019.

The KUFOS team under the leadership of Dr. Daisy C Kappen, Director of Extension i/c comprising of the experts Dr.K Dinesh, Head of the Department of Aquaculture, Dr. Anwar Ali P H, Asst. Professor, Department of Fisheries Resource Management, and Saneer N S, Fishing Technology Assistant visited the CIAL Golf Club to know the prospects for promoting fresh water fish farming in this area. After site inspection, taking into consideration of the physical and chemical parameters and availability of water it was found that the this site is suitable for promoting farming of fishes like pearlspot, GIFT tilapia, seabass, and carps. Out of the various types of fish farming the practice of cage aquaculture of the above fishes has been identified as the most suitable one taking into consideration of management of water quality parameters, detection of diseases if any, easy harvesting and marketing as per the market demand which ensure better price for the farmers. As the above officials from Golf club, CIAL expressed their interest in the culture of pearlspot, the signature fish of Kerala having high market demand as an esteemed table fish, the University agreed to conduct a demonstration of the cage aquaculture of pearlspot. Three hundred numbers of pearlspot seed measuring 5-6cm were stocked in the cages of 3mx2mx2m size. Growth assessment and continuous monitoring of the same is being carried out. After a period of cultivation of 9 months 40 kg of fish was harvested with an average size of 200gm and a survival rate of 67.

## ▶ Agriculture Education Day

Indian Council of Agricultural Research (ICAR) has been celebrating 3rd December as “Agricultural Education Day” to commemorate the birth anniversary of first President of Independent India and Union Minister of Agriculture, Bharat Ratna, Dr. Rajendra Prasad. In virtue of this, Faculty of Fisheries in association with the Directorate of Extension, Kerala University of Fisheries and Ocean Studies (KUFOS) has organized two programmes on 3rd December, 2020. The event was organized in an ONLINE Platform streaming the live session on Face Book with more than 150 participants.

The first programme was conducted during 10.30 am to 12.30 pm aimed at creating interest and awareness on the students and public on the scope and potential of fisheries sector especially aquaculture, ornamental fish culture and fish processing technology as a means of income generation through entrepreneurship.

The programme named as Experts-Students-Public Interaction on Fisheries was kick started by Prof. (Dr.) Riji John, Dean Fisheries, Kerala University of Fisheries and Ocean Studies (KUFOS) giving an introductory note to the session. Prof. Riji has explained the relevance and importance of celebrating the day under Indian context by detailing the history of the fisheries sector and the growth achieved by the sector planning meticulously planning the fisheries education through Indian Council of Agricultural Research (ICAR). He appreciated the doyens who worked tirelessly towards improving the sector with proper planning and policy making.

Dr. B. Manoj Kumar, Registrar of KUFOS gave the presidential address portraying the

struggles undergone by the forerunners to put a solid basement to fisheries education in the country. Dr. K. Dinesh, Head, Department of Aquaculture was the moderator of the event. He gave an outline of the programmes and introduced the panel experts to the audience

Prof. (Dr.) T.V. Anna Mercy, Former Professor, KUFOS opened up the session by rendering her four decades of experience in fisheries education and research. Shri.T. Purushothaman, Chairman of Aquaculture Development Cooperative Society (ADCOS) and the President of Kerala Aqua Farmers' Federation (KAFF) was another speaker. He shared his three decades of aquaculture experience as a shrimp farmer to the students. Shri. C. K. Sudhakaran yet another renowned aqua-farmer shared his views on the necessity of protecting the sustainability of the aquaculture sector.

Prof. (Dr.)Radhika Rajasree, Head, Department of Fish Processing Technology described the enormous opportunities for the students in fish processing and value addition. Further, Dr. Binu Varghese, Assistant Professor elaborated the entrepreneurial possibilities in freshwater and marine ornamental fish culture and seed production. Mr. Rakesh C. G., Project Associate has explained the biofloc technology and its opportunities in a simple manner to the students.

The meeting was very interactive as numerous questions were raised by the students from all the areas and their doubts were clarified by the panelists. The programme came to an end at 12.30 noon with the concluding remarks by Prof. (Dr.) Daisy C Kappen, Directorate of Extension. She proposed the vote of thanks to all the participants and panelists who supported wholeheartedly for making the event a grand success.

Virtual gathering of Students-Experts-Public Streamed live on Face Book The second programme, Students-Experts Interaction on Ornamental fishes has begun at 2.00 with the opening remarks by Prof. (Dr.) Daisy C Kappen, Director of Extension. She has explained the importance of the Agriculture Education Day celebrations and urged all students to be a part of the programme in future also. Ms. Suparana R (Class XI) a participant student from



Mr. Santhosh Baby, Renowned Aquarium Expert interacting with students



Streamed live on Face Book

### KUFOS Students made video film tool to detect food adulteration



*Food Science and Technology Department of Kerala University of Fisheries and Ocean Studies (KUFOS) has made and uploaded a video film in You Tube which introduces some simple yet effective home based food adulteration detection methods. This 08 minutes video will teach the public easily find food adulteration in commonly consumed foods. The film is an initiative of M.Sc Food Science 3rd Semester (2019 Batch) students. The team made the film consists Anju Babu, Alphy Catherine, Aswathy Asokan, Ullasini, Abhirami, Deepthi Davidson, Angel Jasmin, Tintu Simon and Muhammed Hasin. Link to watch the film is - <https://youtu.be/xrPZHOL7cjQ>*

the online audience was given the opportunity to propose the welcome address.

Prof. (Dr.) Devika Pillai, Director of Research gave the presidential address. She has thrown light on the various activities undertaken by KUFOS in promoting science education among the student community related to the mandates of the University. Prof. Devika has thanked the Vidyodaya School for showing interest and enthusiasm to be a part of the event organized by KUFOS and wished all student a great success in their future career.

An interesting lecture was rendered by Mr. Santhosh Baby further who is a renowned aquarium expert and Managing Partner of Aqualine Exports. He elaborated his

knowledge and experience in ornamental fishing keeping, culture, seed production and trade for the promising future in ornamental aquaculture to the students. The students were enthusiastically interacted with the expert and raised their doubts with regard to the sector. Mr. Saneer N. S., Public Aquarium Staff, KUFOS has also shared his views pertaining to the prospects of ornamental fish culture in India.

Dr. Chiranjiv Pradhan, Assistant Professor, Department of Aquaculture concluded the session by proposing the vote of thanks.

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## Training programmes / Webinars

### ▶ Training Programme on Carp farming in pond

As part of the *Subiksha Keralam* programme of Govt of Kerala, the Kerala University of Fisheries and Ocean Studies (KUFOS) and Department of Fisheries have jointly conducted a hands on training programme for fish farmers of the State on Carp farming in pond during August 03-05, 2020. The three days training programme consisted two days theory classes to deliver deep awareness to farmers on character and specialties of different types of carps and the final day was devoted for hands on practical training. The training programme was led by B Ignatius Mandro, Joint Director of the Fisheries Department and the resource persons were the Faculty Members of KUFOS and Officers of the Fisheries Department. On the first day Dr.Anwar Ali P.H delivered the lecture on the topic introduction to composite culture of Carps followed by classes by S.Prince on pre stocking management and Dr.Jyani Jacob on stocking management of Carps.

On the second day of theory training Sofji S Bhadran trained the participants on post stocking management and harvesting while Dr.Manoj C K extended training on water quality and fish health management. Dr.Simi Rose taught them how to prepare a project report for carp farming in pond, calculate the economics and how to manage legal formalities. There was also experience sharing of veteran carp fish farmers on the second day. On the final day of the training programme participants received hands on experience from the field on liming,, manuring, feeding and learned how to check DO, PH, salinity, temperature, alkalinity and TAN.

Over a fifty fish farmers across from the State had participated in the training programme while nearly 500 others did watch the webcast of the training on facebook. On August 03, State Fisheries Minister and Pro Chancellor of KUFOS, J. Mercykutty Amma inaugurated the training programme through online. M.G.Rajamanickam IAS, Director of Fisheries presided over the inaugural function while Sandya R, Additional Director of Fisheries welcomed the online gathering and Dr.Riji John, Fisheries Dean of KUFOS proposed a vote of thanks.

### ▶ Training for Pearlsport farming and seed production

Yet another training programme for fish farmers of the State organized by the Kerala University of Fisheries and Ocean Studies (KUFOS) and Department of Fisheries jointly under the *Subiksha Keralam* project was Pearl spot farming and seed production held during August 06-09, 2020. State Fisheries Minister and Pro Chancellor of KUFOS inaugurated the training programme through online. M.G.Rajamanickam IAS, Director of Fisheries presided over the inaugural function while Dinesh Cheruvat, Executive Director, ADAK Fisheries welcomed the online gathering and Dr Daisy C Kappen, Director of Extension of KUFOS proposed a vote of thanks. Over a 100 fish farmers across from the State had participated in the training programme while nearly 1000 others did watch the webcast of the training on facebook. First day of training programme was divided into four modules. In the first module the participants were introduced to basics Pearl spot farming by Dr.Binu Varghese (KUFOS). The second module was on backyard seed production by Manju S (Fisheries Dept). In the third and fourth modules they taught on pre stocking management by Fathima S Hameed (Fisheries Dept) and stocking management by Dr.jyoni Jacob.

On the second day Sofji S Bhadran (Fisheries Dept) extended training in harvesting and post harvesting techniques and Aneesh P (Fisheries Dept) delivered class on water quality management. There was also a dedicated session for experience sharing with veteran pearl spot farmers of the State. Finally Dr Chaitnya ER taught the participants the methodology of project preparation to avail financial aid and subsidies. On the third and final day, which was dedicated for hands on training, the participants from the field on liming,, manuring, feeding and learned how to check DO, PH, salinity, temperature, alkalinity and TAN.

### ▶ NIAEM-KUFOS collaborative Online Training of Trainers (ToT) Programme on Value Added Food Products and By-products development From Freshwater Fishes

Department of Fish processing Technology, Kerala University of Fisheries and Ocean Studies (KUFOS) conducted a 5 day online training programme on “online training of trainers (ToT) programme on value added food products and by-products development from freshwater fishes” in virtual platform from 18 to 21st February, 2021. The programme was supported by National Institute of Agriculture Extension Management (Ministry of Agriculture ,Govt.of India). The objective of the programme was to impart skill-based training to the participants on different aspects of fish processing technologies related to production of value added quality fish products freshwater sources and their preservation and marketing. The programme was advertised in MANAGE website. A total of 126 participants were received skill training through this programme. The course was inaugurated by Dr. B. Manoj Kumar, Registrar and felicitation address were given by Dr. Mahantesh Shirur, Deputy Director, NIAEM (MANAGE).

### ▶ Training on Padutha Pond fish farming

The last training programme conducted jointly by KUFOS and Kerala Fisheries Department in the *Subhiksha Keralam* series was held during July 24-28, 2020 on fish farming in Padutha ponds. The three day



## Training programmes / Webinars

training programme which was attended by around 100 farmers and watched by another 750 farmers through Facebook was led by B Ignatius Mandro, Joint Director of the Fisheries Department . Aquaculture Dept Head of KUFOS Dr.K.Dinesh give the participants introduction to intensive farming system which is suitable for padutha ponds. Dr.Vinu Jacob, Dr.Jyoni Jacob, Sofji S Bhadran, Dr.Manoj C K, Dr.Chaithanya E R were the other resource persons of the four day training programme . The training sessions were ended on fourth day by construction of a padutha pond by the participants themselves.



Processing Technology and Value Addition of Fish and Fishery Products” in KUFOS campus from 09 to 13 March, 2020 . The aim of the programme was to impart skill-based training to entrepreneurs on different aspects of processing fishery produce, production of value-added products, their preservation and marketing. Discussions spanned over such diverse issues as the preparation of business plans for the establishment of industrial units for value added fishery products, technology options, cost-benefit considerations, and marketing challenges. Options and formalities of obtaining credit was discussed in detail for the benefit of prospective entrepreneurs. The brainstorming session for generation of new product ideas was much appreciated by the participants.



Entrepreneurship Training Programme in Bakery Products Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors in association with Centre of Excellence in Food Processing Technology (CEFPT) conducted an offline training programme during 11-13<sup>th</sup> January 2021 at KUFOS on the topic “Entrepreneurship Training Programme in bakery products” for budding entrepreneurs various districts of Kerala.

### ▶ Webinar Agri-business and start-up opportunities in Agriculture and Allied sectors

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors Conducted an online webinar on “Agri-business and start-up opportunities in agriculture and allied sectors” on 5<sup>th</sup> October, 2020 in collaboration with National Institute of Agricultural extension management, Ministry of Agriculture and Farmers Welfare , Government of India.

### ▶ National Webinar on Aquatic Animal Health Management

Faculty of Fisheries of KUFOS and Department of Fisheries, Govt of Kerala have jointly organized a national webinar on August 28, 2020 on aquatic animal health management for sustainable aquaculture on the occasion of the release of Standard Operating procedures for Aquatic Animal Health Management . The webinar was inaugurated by Pinarayi Vijayan, Chief Minister of Kerala while releasing the standard operating procedures by online. J.Mercykutty Amma, Minister for Fisheries and Pro Chancellor of KUFOS presided over the function. Dr.A.K.Jena, DDG-ICAR (Fisheries Science) delivered the key note address and Dr.C.N. Ravishankar, Director of Central Institute of Fisheries Technology and Dr.A.Gopalakrishnan, Director of Central Marine Fisheries Research Institute made the felicitations on the occasion. M.G.Rajamanickam IAS, Director of Fisheries welcomed the online gathering and Dr.B.Manojkumar, Registrar, KUFOS proposed a vote of thanks. In the technical session of webinar Dr.Riji John ( Dean, Faculty of Fisheries, KUFOS), Dr.K.V.Rajendran ( Principal Scientist, CIFE,Mumbai), Dr.P.K.Pradhan (Principal Scientist,NBFGR, Lucknow), Dr.Rosalind George (Professor, TNJFU, Thoothukudi), Dr.B.K.Das ( Director CIFRI, Barrackpore), Dr.N.K.Sanil (Senior Scientist, CMFRI, Kochi), Dr.S.K.Ottava ( Principal Scientist, CIBA, Chennai), Dr.S.K.Girisha (Asst Prof, College of Fisheries, Manglore), Dr.Devika Pillai ( Professor and Heald, KUFOS), Dr.M.M.Prasad (Principal Scientist, CIFT, Kochi) and Dr.P.K.Saboo

### ▶ High Field Food Safety Level 3 HACCP Training

Department of Fish Processing Technology jointly with Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries, KUFOS Agri-Business and Allied Sectors in association conducted an on-line High Field Food Safety Level 3 HACCP training for final year BFSc students of KUFOS during 17-23<sup>rd</sup> February, 2021. 78 students were participated in the training programme



### ▶ Entrepreneurship Training in Fish Processing Technology and Value Addition of Fish and Fishery Products

Department of Fish processing Technology, Kerala University of Fisheries and Ocean Studies (KUFOS) in collaboration with National Institute of Agriculture Extension Management (Ministry of Agriculture and farmers welfare), Hyderabad organized a 5 day residential training programme on “Entrepreneurship Training in Fish



(Principal Scientist, CIFA, Bhubaneswar) were presented papers on various topics related to on aquatic animal health management for sustainable aquaculture. In the concluding session Tinku Biswal IAS, Fisheries Secretary and Vice Chancellor i/c of KUFOS led the discussion on the topic and made the feedback from the Chair

### Webinar on Agri- business and start-up opportunities

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors conducted an online webinar series on Agri- business and start-up opportunities on 10<sup>th</sup> October, 2020 in collaboration with Kerala Startup Mission on the topic “How to start a start up step by step”

### Emerging technologies and entrepreneurship in Dairy and Meat Sectors

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors and Faculty of Ocean Science & Technology jointly organized a national webinar on “Emerging technologies and entrepreneurship in Dairy and Meat Sectors” on November 5-6, 2020 at KUFOS. The speakers of webinar were Dr. Latha Sabikhi; ICAR-NDRI, Karnal on the topic “ Emerging prospects in functional dairy foods and scope for entrepreneurship”, Dr. Bikash Chandra Ghosh ; ICAR-NDRI SRS , Bangalore on the topic “ Recent Advances in Indian dairy products and entrepreneurship, Dr. Mohamed Nadeem Fairuze, Former professor and head, Department of LPT, Veterinary college, Hebbal, Bangalore on the topic “opportunities in the meat industry in India for budding entrepreneurs”, Dr. Vasudevan V. N, College of Veterinary and Animal Science, Mannuthy, on the topic “Conventional and novel technologies for valorization of abattoir co- products”.



### Webinar on Agri- business and start-up opportunities

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries , Agri-Business and Allied Sectors conducted an online webinar series on the topic “ Start-up and employment opportunities in Fisheries & Aquaculture- Government initiative and schemes” in collaboration with Centre for Innovation and Agripreneurship (CIA), National institute of Agricultural extension management, GOI on 6<sup>th</sup> November, 2020.

## Aqua ranching of native carps in Reservoirs in Kerala under UNDP-IHRML – KUFOS Project

As part of the implementation of the United Nations Development Project – Integrated High Range Mountain Landscape – Kerala University of Fisheries project entitled “Enhancing reservoir fish production and creation of livelihood opportunities for the local community through development of aquaculture practices of native fishes” 3500 seeds of indigenous fish species *Systemus sarana* (Mal. Kuruva paral) were ranched in Idamalayar reservoir during the COVID – 19 pandemic period. The captive breeding protocol for the species was standardized at the freshwater aquaculture facility of KUFOS under this project. The seeds were released in the presence of officials from UNDP, Kerala State Electricity Board, Scheduled Tribe promoter, aquaculture promoter of the Kuttampuzha Grama Panchayat, tribal fishers and the research team of KUFOS.

The project embodies the conservation initiatives laid down in SDG 14 - Life Below Water and envisages to standardize captive breeding and farming protocol for three endemic freshwater carps of Kerala having edible importance viz. *Systemus sarana*, *Barbodes carnaticus* (Mal. Pachilavetti) and *Hypselobarbus kurali* (Mal. Kooral) and is being implemented in the tribal settlements in Kuttampuzha and Athirappilly Grama Panchayaths. As part of the project the seeds produced in captivity will be released in the Idamalayar and lower Sholayar reservoirs in order to increase the reservoir fish production and to create livelihood opportunities for the reservoir dependent tribal fishers. Steps have been initiated for commencing a hatchery intending the seed production of endemic freshwater fishes of Kerala at Idamalayar by converting and renovating a building facility owned by the Kerala State Electricity Board. The project proposes to establish pond farming, aquaponics and ornamental farming units for the native fishes in the tribal settlements in the coming three months after imparting practical training. The project started in June 2021 with a total financial outlay of 52.5 Lakhs for which Dr. Anvar Ali P H from the Department of Fisheries Resource Management is designated as the Principal Investigator; Dr. S Suresh Kumar and Dr. Limna Mol of the Department of Ocean Science and Technology and Dr. Chiranjiv Pradhan of Department of Aquaculture as the Co- Investigators.



Releasing of fish seeds under the UNDP- IHRML- KUFOS Project



## ▶ RT-PCR Machine for Covid-19 testing to Kerala Health mission, Govt. of kerala

RT-PCR machine of Department of Fish Processing Technology, Faculty of Fishery Sciences, Kerala University of Fisheries and Ocean Studies (KUFOS), Panangad, Kochi, has been handed over to Kottayam Medical College and Hospital Kerala for time being in view of pandemic of Covid19 detection in Kottayam and nearby areas.

The Real Time Polymerase Chain Reaction (RT-PCR) machine, which is used in the university's Biochemistry lab for molecular identification of the immune genes in fishes during host immune response.

The machine can analyse 96 samples and has the same capability as that of the machines being used in laboratories for coronavirus tests. The department has also earlier conducted workshops/trainings on the RT-PCR.

The department has also agreed to support with trained student/research scholar as volunteers to help with a shortage of lab technicians for conducting COVID-19 tests.



## ▶ KUFOS students planted 2162 trees

Students of Kerala University of Fisheries and Ocean Studies (KUFOS) have planted 2162 trees during environment week of 2020 at different places.

The programme was conducted by Marine Biology department of School of Ocean Science and Technology as part of the United Nations Environment Programme. Each student participant planted 20 trees during the week at various locations of their native place with the help of environmental activists .Dr.B.Manojkumar, Registrar inaugurated the programme through online. Faculty Members Dr.V.P.Limna Mol and Dr.T.K.Sirajudheen were led the programme.



## ▶ Anju N Suresh and Prajith V.B won first prizes

Anju N Suresh of B.C.M.College, Kottayam has won the first prize in the essay writing competition conducted for college students on the topic of Importance of Mangroves. The essay writing competition was jointly conducted during September 2020 by the Department of Aquaculture, Kerala University of Fisheries and Ocean Studies (KUFOS) and Commonwealth Human Ecology Council to create awareness on Mangroves among university students. Soorya Gopan, B.F.Sc student of KUFOS has won the second prize and Karthika S Nair of Thiruvananthapuram Law Academy adjusted the third prize. Winners were presented Rs 5000, Rs 2500 and Rs 1000 respectively with certificates

Prajith V.B (Kollam), Gatha Gopakumar (Perumbavoor) and Vishnu P (Kannur) have won first, second and third prizes respectively in the painting competition on the same subject conducted for school students. The winners were presented certificates and cash awards.



## Sanitizer Production at KUFOS

In connection with prevention of COVID-19 spread, KUFOS has prepared 50 litres of hand sanitizer in March 2020 and distributed to university employees and offices in all campuses under KUFOS. Chitosan, which has antibacterial and antiviral properties, was used as an ingredient of the sanitizer.



*The UGC team is with KUFOS Vice Chancellor i/c Mrs Tinku Biswal IAS and other KUFOS Officials*



## ▶ UGC team completes KUFOS evaluation

Kochi: expert committee of University Grants Commission (UGC) has completed its two day evaluation of Kerala University of Fisheries and Ocean Studies (KUFOS) during second week of January 2021 .. The expert committee consisting of Prof B.K.Punia, former Vice Chancellor of M.D.University, Rohtak as chairman and Dr.Veerandra Veer Singh , Dr. Amita Saxena and Mrs. Kundla Mahajan as members was appointed by the UGC to consider the award of UGC

12 B status to KUFOS, which was already due.

The four member committee was mainly evaluated the infrastructure, academic, research and extension facilities of KUFOS. In the beginning of the evaluation process, the KUFOS Vice Chancellor i/c Mrs. Tinku Biswal IAS has presented before the expert committee about the 10 years detailed working progress of the university on academic, research and extension activities. The committee members were also interacted with the statutory officers of the university and visited fisheries faculty and the other four schools working in the university. The expert team also evaluated academic facilities at different departments, library, laboratories, hatcheries, fish

ponds and students hostels. On the second day the committee evaluated the reports and other published works of the university faculty members and researchers submitted to the committee, followed by a detailed interaction session with KUFOS students, researchers and doctoral fellows and heard about the facilities and bottlenecks on academic and administrative facilities

Registrar Dr.B.Manojkumar and Controller of Examinations Dr.K.P.Subhashchandran were led the evaluation process from the side of KUFOS. Prof B.K.Punia, Chairman of expert committee said in the concluding session that the committee will soon present the report to the UGC and final decision on 12 B status award will be communicated later..

## ▶ KUFOS conducts Biofloc training for Fisheries Department Officials

The current level of exploitation of fish stocks in Kerala has exceeded the Maximum Sustainable Yield (MSY) level and hence there is only little scope for additional fish production from marine fisheries. In this context, development of aquaculture has been identified as an alternate means of increasing fish production catering to the food security problems of increasing population. Introduction of new innovative aquaculture technologies and varieties along with covering more potential areas are the means to achieve



*Adv. Manu C Pulikkal is stocking fish seeds in Model Biofloc Unit built in KUFOS as part of the training programme conducted for fisheries department officials*

more production. Kerala state as a whole can be considered as an urban area due to its densely populated nature coupled with development. Future growth in aquaculture is likely to be constrained by limited supplies of land for constructing

new ponds and shortage of water. Hence sustainable exploitation using new technologies suitable for urban areas are the best alternative in Kerala. In this scenario farming of fish with biofloc offers huge potential for fish production



from relatively smaller area.

Considering the importance of biofloc farming in Kerala context, the Kerala University of Fisheries and Ocean Studies (KUFOS) has organized a two day training programme for Fisheries Department officials to familiarize them biofloc farming method during May 29-31,2020

In biofloc system, fish can be grown at high density under controlled environmental conditions. It is an innovative fish culture method which is developed to utilize maximum nutrients that is present in water through fish excreta and feed, through recycling by heterotrophic bacteria by converting into feed, thereby reducing the requirement of supplementary feed. In this system, ammonia is controlled by bacterial conversion and thereby reduce the quantity of feed used. Conventional methods are based on algal primary productivity, while in biofloc we add carbon source externally to facilitate the action of heterotrophic bacteria to utilize Nitrogen. It can be done in cement tanks or lined ponds. There is no water

exchange needed for biofloc system hence there is less water consumption. Dr.Devika Pillai , Head of Department of Aquaculture Animal Health has recently developed a cost effective biofloc system, which is suitable to Kerala environment and she had successfully set up a model biofloc unit in KUFOS, which has been used to extend training to own students. Fisheries department officials were given training in the same biofloc system. The main aim of the training programme was technology transfer

50 fisheries department officials have participated in the two day training programme. 16 officials were directly participated in the programme while others attended the training through online. KUFOS Governing Council Member Adv.Manu C Pulikkal was inaugurated the training programme. Dr. K.V.Sankar, Director of Research, Dr.K.Riji John, Dean Faculty of Fisheries and Registrar Dr.B.Manojkumar were spoke at the inaugural function of the two day training programme.



## State Govt to popularize biofloc fish farming

As part of the State Government's 'SubhikshaKeralam' project aimed at evolving a self-sustainable post-COVID lifestyle, the State Fisheries Department will popularize high-tech biofloc fish farming in the State in a considerable way, said Fisheries Minister J Mercykuttyamma. She was inaugurating the biofloc farming training programme conducted for fish farmers of the State jointly by Kerala University of Fisheries and Ocean Studies (KUFOS) and Fisheries Department. The training programme was held on July 10, 2020 as part of the fish farmers day observation.

Minister J Mercykuttyamma said By expanding fish cultivation through biofloc system, we will be able to become self-sufficient in fish production while setting up biofloc ponds in home gardens across the state. We will be able to create more job opportunities along with increasing fish production," the minister added. She said hundreds of biofloc units will be ready on next farmers day which falls on Chingam first under the subhikshakerala project. Three industrial hatcheries will be established in Kolathupuzha, Malampuzha and Varapuzha to supply fish seeds to biofloc fish farmers. State Fisheries Secretary and Vice Chancellor in-charge of KUFOS Tinku Biswal IAS was presided over the function. Fisheries Director Dr.Raja Manikyan IAS delivered the key note address. Registrar Dr.B.Manojkumar welcomed the online gathering and Fisheries Dept Joint Director Ignatious Manro proposed a vote of thanks. Over 100 fish farmers from across the state have participated in the online training programme.

## KUFOS GC approves 88.08 crore budget for the fiscal 2021-22

Kerala University of Fisheries and Ocean Studies (KUFOS) budget for the financial year 2021-22 has lined up ambitious projects to boost value additions in the fisheries educational sector. The General Council meeting of KUFOS held on March 23, 2021 has approved a budget of 88.08 crores rupees for the fiscal year 21-22. Out of this, Rs 54.07 crores have been earmarked for project implementation and 24.55 crores is meant for meeting other expenses. The university is expecting 5.55 crores rupees as external aid from other agencies for implementation of research and consultancy projects. Prof ( Dr) K Riji John, Vice Chancellor presented the budget at council meeting held through online.

The budget has allocated Rs 50 lakhs for the initial activities to set up Fisheries Colleges in Payyannur and Kollam, which were announced by the State Government earlier. Including

this, a total amount of Rs.9.5 crores has earmarked for upgradation of academic sector. The budgetary allocation for the sub centres of KUFOS in Kundara and Payyannur is two crores each. Another one crore rupees is allocated for the development activities to be implemented in Puthuvype campus. Apart from this, Rs 30 lakhs has allocated for the improvement of finfish hatchery situated in Puthuvype campus.

An allocation of Rs.1.50 Crores has been given for the KUFOS Directorate of Extension for disseminating the various research findings, activities and information to farmers. The budget has also earmarked Rs One Crore for the initial activities for establishment of Animal Health Referral Laboratory in KUFOS main campus with Central and State Govts aid of Rs 10 crores.

Infrastructural development activities of Rs 15 crore including construction of students hostels will be carried out next financial year, according to the budget.



## ► Ornamental Fish farming training

A three day training programme in ornamental fish farming was organised in KUFOS by the Centre of Excellence for Sustainable Aquaculture and Aquatic Animal Health Management (CAAHM) during March 23-25, 2021. Twenty six ornamental fish farmers from various parts of Kerala attended the programme. Vice Chancellor, Prof (Dr.) K.Riji John inaugurated the training programme. In his inaugural address, Dr.Riji John highlighted the scope of Ornamental fish culture of the Western Ghats region and its export potential. He also emphasized the importance of ornamental fish farming in the State of Kerala, where availability of land is limited. Registrar Dr.B.Manojkumar, Director of Research Dr.Devika Pillai and Aquaculture Dept Head Dr.K.Dinesh spoke on the occasion. The training programme were led by Dr.Anna Mercy, Professor Chair of CAAHAM and an internationally known resource person of ornamental fish culture training. The training sessions comprised of lectures on various topics related ornamental fish farming including nutrition feed management



*Vice Chancellor Prof (Dr) Riji John inaugurates three days ornamental fish farming training in KUFOS. Director of Research Dr.Devika Pillai, Registrar Dr.B.Manojkumar, Chief Resource Person Dr Anna Mercy and Aquaculture Dept Head Dr.K.Dinesh are also seen in the picture..*



*Vice Chancellor Prof (Dr) K.Riji John inaugurates two day national workshop on Ensuring Quality in Scientific Research and Effective Utilization of e-Resources. Resource Person Dr.A.A.Muhammed Hatha, Librarian V.S.Kunjumuhammed and Finance Officer Joby George were seen in the picture.*

## ► National Workshop on Ensuring Quality in Scientific Research & Effective Utilization of e-Resources

KUFOS Library has organized two days National Workshop on 'Ensuring Quality in Scientific

Research & Effective Utilization of e-Resources' on 16/17 March 2021. The workshop addressed research publication process, global network optimization and structuring of research publication, review and indexing process, methods of generating good publications, demonstration of global indexing databases, literature search etc. The basic objective of the workshop was to share knowledge and experience on various aspects of scientific research to the Researchers, Professionals, Teachers and Students and to create awareness about scientific research methodology amongst faculties and research students. The Workshop focused on current problems and remedial measures on scientific research including ethics in research. The delegates had opportunity to learn statistical methods for systematic research process. Around 80 research students and teachers from various colleges and university departments participated in the two day national workshop led by Dr.A.A.Muhammad Hatha (Cusat). Vice Chancellor Prof (Dr) K.Riji John inaugurated the national work. Director of Research Dr.Devika Pillai, Finance Officer Joby George and Librarian V.S.Kunjumuhammed were also present on the inaugural function of the national workshop.



## Republic Day greetings

Vice Chancellor Prof (Dr) K.Riji John extends Republic Day greetings at KUFOS head quarters at Panangad after hoisting the national flag on 72<sup>nd</sup> Republic Day. Dr.B.Manoj Kumar, Registrar and a limited number of employees were present since flag hoisting was held under strict Covid protocols issued by the State Government.

## ► KUFOS students won second prize in Valorizing Food Biodiversity in Your Country Global Competition



Amala Tony, Aswathy A and Chitra Harinarayanan in KUFOS Food Science laboratory

Amala Tony, Chitra Harinarayanan, and A. Ashwathy, third semester M.Sc. Food Science and Technology students at Kerala University of Fisheries and Ocean Studies (KUFOS) have been won the 2nd best project prize in the ISEKI Food Competition conducted globally. This International Competition in “Valorizing Food Biodiversity in Your Country” is the 3rd Sustainable Supply Chain Competition of ISEKI Food Association, through its affiliate European Food-STA under the umbrella of Food Factory 4-Us, funded by European Commission. The Competition series of 2 of the Case studies of the Next Food project which promotes innovative education for sustainable agriculture.

## Ph D Awarded.....



**Sneha K.G.**, Research Scholar, Faculty of Ocean Science and Technology, worked under Dr.Devika Pillai, Professor and Head of the Department of Aquatic Animal Health Management, Faculty of Fisheries has been awarded (March 2021) Doctor of Philosophy for the thesis entitled “Prevalence of antimicrobial resistant bacteria in the aquatic environment : A study conducted in the vicinity of selected hospitals and adjoining aquaculture farms in Kerala”



**Ambili K.P.**, Research Scholar, Department of Business Administration and Management, Faculty of Manangement, Humanities and Social Sciences, worked under the guidance of Prof (Dr).Ambilikumar, has been awarded (Sept 2020) Doctor of Philosophy for the thesis entitled “Study on Influence of online advertisements on the buying behaviour of FMCG consumers in Kerala”



**Hasfa Maqbool**, Research Scholar, Department of Fish Processing Technology, Faculty of Fisheries worked under Dr.Safeena M.P, Asst Professor and Dr.A.A.Zynudheen, Principal Scientist, ICAR-Central Institute of Fisheries Technology, Kochi has been awarded (August 2020) Doctor of Philosophy for the thesis entitled “Evaluation of Natural Phenolic Compound on Quality and shelf-Life of Mahseer (*Tor Khudree*) Steaks under Low Temperature Storage”



**Sabu Varghese**, Research Scholar, Faculty of Manangement, Humanities and Social Sciences, worked under the guidance of Prof (Dr) M.S.Raju, has been awarded (July 2020) Doctor of Philosophy for the thesis entitled “The Impact of Psychological Contract Breach Among Bank Employees in Ernakulam District, Kerala”



**Rubeena K.A.**, Research Scholar, Faculty of Ocean Science and Technology, worked under Dr.Preetham Elumalai, Asst Professor, Department of Fish Processing Technology, Faculty of Fisheries has been awarded (February 2021) Doctor of Philosophy for the thesis entitled “Purification, Characterization and Antimicrobial activity of C-Type Lectins from *Metapenaeus dobsoni* and *Etroplus suratensis*”



**Amitha Kurian**, Research Scholar, Faculty of Ocean Science and Technology, worked under Dr.Preetham Elumalai, Asst Professor, Department of Fish Processing Technology, Faculty of Fisheries has been awarded (February 2021) Doctor of Philosophy for the thesis entitled “Evaluation of cost-effective feed additives as dietary supplement to improve growth, immune function, antioxidant activity and disease resistance in Nile tilapia (*Oreochromis niloticus*)”



**Chithra V Menon**, Department of Business Administration and Management, Faculty of Manangement, Humanities and Social Sciences, worked under the guidance of Dr.C.K.Madhusoodhanan, Professor, Department of Management Studies, Sree Narayana Gurukulam College of Engineering (approved research centre of KUFOS) has been awarded (March 2021) Doctor of Philosophy for the thesis entitled “A study on competency of international airports of Kerala in the purview of international trade”



## Achievements.....



**Dr. Devika Pillai**, Professor and Head of Dept of Aquatic Animal Health Management was given a **Certificate of Appreciation in recognition of her contribution** as the member of technical advisory committee for successfully implementing the Biofloc Aquaculture system in the State under *Subhiksha Keralam* Project by Government of Kerala. The certificate was handed over at the 'Fish Farmers Meet', a function organized by the State Fisheries Department on 1<sup>st</sup> March, 2021

**Dr. Vineetha V.P.**, Post-Doctoral Fellow of Dept of Aquatic Animal Health Management with Dr. Devika Pillai is selected as the Editorial Board member of the journal 'Cardiovascular Toxicology' I.F. - 3.231 from September 2020.

**Roopa Rajan, Bincy P.K.**, Safeena M.P., T.K. Srinivasa Gopal and Radhika Rajasree S.R. won the Best Paper Award at the International e-Conference on Bioengineering for the Health & Environment ICBHE- MAHSA University, Malaysia 2020 held on July 16th & 17th 2020.

**Mr. Ramvilas Ghosh**, Research Scholar under Dr. Ranjeet K, Asso Professor, Dept of Fishery Hydrography received the Rufford Small Grant for the topic 'Intertidal gorgonians of the Mumbai coast: a curious case of poorly-known urban marine biodiversity in India'.



**Dr. Preetham Elumalai**, Assistant Professor (Biochemistry), Department of Fish processing Technology of Kerala University of Fisheries and Ocean Studies (KUFOS) has been awarded with

the International Veterinary Vaccinology Network (IVVN) project grant award for his project on "*In vitro* correlates of protective immunity in fish".



**Dr. Manju P Nair** has been awarded **KSCSTE Back To Lab Fellowship for postdoctoral research in April 2021**. The amount sanctioned is 14, 17,200 and this is a three year project under the mentorship of Dr. Anu Gopinath. The project is entitled "Nano and microplastics prevalence as a source of trace metal- A Tropical Polar Evaluation".



**Nimsi K A**, research scholar of the department of Marine Microbiology, Faculty of Ocean Science and Technology working under the guidance of Dr. K. Manjushawon the **Best Oral Presentation award** under Environmental Sciences, Forestry and Wildlife session of the 33<sup>rd</sup> **Kerala Science Congress** held during 25-30 January 2021 for the paper entitled '**Carotenoid pigments from Marine Yeasts and their Varied Applications**'



**Mr. Nizam Ashraf** of MSc Marine Microbiology (Batch 2018-20) has bagged the Best PG Dissertation Award 2019-2020 constituted by Ocean Society of India (OSI) under the stream Marine Microbiology & Biotechnology for the dissertation entitled "Studies on diversity of bacteria associated with selected corals of Lakshadweep and their bioactive potentials".



**Amitha Kurien** is PhD Scholar doing research under the guidance of Dr. E.P Preetham, Assistant Professor, Dept. of Fish Processing Technology (Biochemistry), KUFOS, has been invited for her post doctoral research at the Department of Animal and Aquatic Sciences, Chiang Mai University, Thailand



**.Gopikrishnan G S** of M. Sc. Physical Oceanography (Batch 2018-20) was awarded the Best PG Dissertation Award 2019-2020 constituted by Ocean Society of India (OSI) under the stream "Ocean and Atmospheric Sciences" for the dissertation entitled "Assessment of Formaldehyde over the Indian Ocean and its impact on Marine Environment".



**Raheema Rehman** of M. Sc. Physical Oceanography (Batch 2019-21) has bagged the CSIR-Junior Research Fellowship for June 2020 (During the CSIR examination conducted on November 2020).



**Ms. Naiji Josephine** A J of 4th semester, MSc Marine Biology, SOST, KUFOS has cleared the JRF/NET and UGC NET held in 2019 December. Congratulations to Nyji

**Ms. Chitra, Ms, Tintu Simmon and Ms. Ashwathy Asokan** M. Sc. (Food Science and Technology) qualified the quiz conducted on the occasion of World Milk Day. Ms. Chitra M. Sc. also won 2nd Prize for Intercollegiate photography competition conducted on the occasion of World Biodiversity Day.



# List of Publications.....

## List of Publications (Journals/Books)

- S Peter, MB Nair, D Pillai (2020). Evolutionary analyses of phylum Chaetognatha based on mitochondrial cytochrome oxidase I gene. *Turkish Journal of Zoology* 44, 508-518.
- PA Naseeba, VR Madhu, Kumar BM, L Edwin (2020). Length-Girth Relationships of Selected Trawl Resources of Cochin Coast, Kerala. *Fishery Technology* 57, 156-162
- CN Shaganimol, B Manojkumar, S Kaliraj (2020). Application of geographical information system (GIS) for site suitability modeling and development of spatial decision support in shrimp farms 263-274 In: *Frontiers in Benthic Science*. SB Nandan, P Priyaja, PR Jayachandran (Eds.) Directorate of Public Relations and Publications, CUSAT, Kochi, India. 306pp. ISBN978-81-936217-7-6.
- MAzhar, L Edwin, BM Kumar, SN Thomas, MP Remesan (2020) Comparison of multifilament polyamide (PA) stringless (with fixed pockets) and multifilament polyamide (PA) stringed cast net operated in Dal Lake, Kashmir. *Journal of Entomology and Zoology Studies* 8(1):1617-1620
- M Azhar, L Edwin, BM Kumar, SN Thomas, MP Remesan (2020) Catch Efficiency of Cast Nets for Snow Trout Fishing in Dal Lake, Kashmir. *Fishery Technology* 57: 10-16
- CR Renjithkumar, K Roshni, R Raghavan & K Ranjeet (2020). First record of the Mayan Cichlid *Mayaheros urophthalmus* (Günther, 1862) in South Asia and its potential implications. *Journal of Applied Ichthyology* 36: 699-704.
- A Pinder, R Raghavan, SJ Cooke & R Britton (2020) Covid-19 and biodiversity: the paradox of cleaner rivers and elevated extinction risk to iconic fish species. *Aquatic Conservation: Marine & Freshwater Ecosystems* 30: 1061-1062.
- R Sundar, VK Anoop, A Sidharthan, N Dahanukar & R Raghavan (2020) The identity and distribution of *Bhavana annandalei* Hora 1920 (Cypriniformes: Balitoridae), a hillstream loach endemic to the Western Ghats of India. *Journal of Threatened Taxa* 12(10): 16262-16271
- U Katwate, P Kumkar, R Raghavan & N Dahanukar (2020) Taxonomy and systematics of the "Maharaja Barbs" (Teleostei: Cyprinidae) with the description of a new genus and species from the Western Ghats, India. *Zootaxa* 4803: 544-560
- K Roshni, CR Renjithkumar, R Raghavan, N Dahanukar & K Ranjeet (2020) Population dynamics and management strategies for invasive *Clarias gariepinus* in the Western Ghats Biodiversity Hotspot. *Journal of Threatened Taxa* 12(10): 16380-16384.
- H Sudasinghe, R Pethiyagoda, T Ranasinghe, R Raghavan, N Dahanukar & M Meegaskumbura (2020) A molecular phylogeny of the freshwater-fish genus *Rasbora* (Teleostei: Cyprinidae) in Sri Lanka reveals a remarkable diversification - and a cryptic species. *Journal of Zoological Systematics and Evolutionary Research* 58: 1076-1110.
- H Sudasinghe, R Pethiyagoda, R Raghavan, N Dahanukar, L Rüber & M Meegaskumbura (2020) Diversity, phylogeny and biogeography of *Systemus* (Teleostei, Cyprinidae) in Sri Lanka. *Zoologica Scripta* 49: 710-731.
- A Pinder, R Raghavan & RJ Britton (2020) From scientific obscurity to conservation priority: research on angler catch rates is the catalyst for saving the hump-backed mahseer *Tor remadevii* from extinction. *Aquatic Conservation: Marine and Freshwater Ecosystems* 30: 1809-1815.
- R Britz, N Dahanukar, VK Anoop, S Philip, B Clark, R Raghavan & L Rüber (2020). Aenigmachannidae, a new family of snakehead fishes (Teleostei: Channoidei) from subterranean waters of South India. *Scientific Reports* 10: 16081
- A Sidharthan, R Raghavan, VK Anoop, S Philip & N Dahanukar (2020) Riddle on the riffle: Miocene diversification and biogeography of endemic mountain loaches in the Western Ghats Biodiversity Hotspot. *Journal of Biogeography* 47 (12): 2741-2754.
- BKA Sumarto, H Kobayashi, R Kakioka, R Tanaka, K Maeda, HD Tran, N Koizumi, S Morioka, V Bounsang, K Watanbe, P Musikasinthorn, S Tun, LKC Yun, VK Anoop, R Raghavan, KWA Masengi, S Fujimoto & K Yamahira (2020) Latitudinal variation in sexual dimorphisms in a freshwater fish group. *Biological Journal of the Linnean Society* 131: 898-908.
- U Katwate, D Apte & R Raghavan (2020) *Dawkinsia Uttara*, a new species of filament barb (Teleostei: Cyprinidae) from the Western Ghats of India. *Vertebrate Zoology* 70(4): 717-730.
- SJ Cooke, WM Twardek, AJ Lynch, IG Cowx, JD Olden, S Funge-Smith, K Lorenzen, R Arlinghaus, Y Chen, OLF Weyl, EA Nyboer, PS Pompeu, SM Carlson, JD Koehn, AC Pinder, R Raghavan, S Phang, AA Koning, WW Taylor, D Bartley and JR Britton (2021) A global perspective on the influence of the COVID-19 pandemic on freshwater fish biodiversity. *Biological Conservation* 253: 108932.
- A Sidharthan, R Raghavan, VK Anoop, A Keskar & N Dahanukar (2021) Phylogenetic position and relationships of mountain loaches (Teleostei: Balitoridae) of the Western Ghats as revealed by CO1 sequences. *Zootaxa* 4926(1): 079-082.
- N Sreenivasan, N Mahesh & R Raghavan (2021) Fishes of the Cauvery Wildlife Sanctuary, Karnataka. *Journal of Threatened Taxa* 13(1): 17470-17476.
- H Sudasinghe, N Dahanukar, R Raghavan, T Senavirathna, DJ Shewale, MS Paingankar, A Amarasinghe, R Pethiyagoda, L Rüber & M Meegaskumbura (2021) An island colonization by a 'rheophilic' fish: the phylogeography of *Garra ceylonensis* (Teleostei: Cyprinidae) on Sri Lanka. *Biological Journal of the Linnean Society* 132: 872-893.
159. R Ghosh, S Dhyani, B Kumar, N Sinha, R Raghavan, G Selvaraj, N Divakar, VK Anoop, K Shalu, S Molur, A Sinha, P Molur, A Kulkarni & S Das (2021) Insights on COVID-19 impacts, challenges and opportunities for India's biodiversity research: from complexity to building adaptations. *Biological Conservation* 255: 109003.
- K Roshni, CR RenjithKumar, R Raghavan & K Ranjeet (2021) Fish distribution and assemblage structure in a hydrologically fragmented tropical estuary on the south-west coast of India. *Regional Studies in Marine Science*, 43, 101693
- BM Nowshad, KK Idreesbabu, K.K., Sureshkumar S. (2021) Habitat wise variability in the diversity of sea cucumbers in Lakshadweep Archipelago, North-Western Indian Ocean. *Regional Studies in Marine Science* In Press.
- P Sahadevan, S Sureshkumar (2021) Economic Evaluation of Traditional Prawn Filtration Practice in Central Kerala, South India. *Journal of Aquatic Biology & Fisheries* 9, 33-41
- JA Jose, CS Kumar, S Sureshkumar (2021) A deep multi-resolution approach using learned complex wavelet transform for tuna classification. *Journal of King Saud University - Computer and Information Sciences*. In Press.

# .....List of Publications.....

- JA Jose, C. Sathish Kumar, Sureshkumar S. (2021). Tuna classification using super learner ensemble of region-based CNN-grouped 2D-LBP models. *Information Processing in Agriculture*. In Press.
- SS Suneela, S Sureshkumar (2021) Characteristics of Mudbanks along the Southwest Coast of India. *Earth and Environmental Science Research and Reviews*, 4, 1-4.
- KK Idreesbabu, S Sureshkumar (2021) First Record of Deepwater scorpionfish *Phenacoscorpius adenensis* (Teleostei: Scorpaenidae) from India, Central Indian Ocean. *Thalassas: An International Journal of Marine Sciences* In Press.
- AA Zubair, S Sureshkumar (2021) Phylogenetic Grouping and Virulence Genes Distribution in Uropathogenic *Escherichia coli* Isolated from Environmental Samples in Ponnani, South India. *Journal of Aquatic Biology & Fisheries*, 8, 139-144
- AI Muhsin, PVP Shahul Hameed, P Pookoya, M Harikrishnan, K Ranjeet (2020). Fish stock demographics of skipjack tuna (*Katsuwonus pelamis*) from Kavaratti in Lakshadweep, Southern Arabian Sea. *Journal of Fisheries*, 8(3), 940-944.
- CR Renjithkumar, K Roshni, K Ranjeet (2020). Food and Feeding habits of Malabar butter catfish, *Ompok malabaricus* (Valenciennes, 1840) from the Chalakudy river, Kerala, India. *Journal of Aquatic Biology and Fisheries*, 8(S), 98-101.
- CR Renjithkumar, K Roshni, K Ranjeet (2020). Feeding ecology of the endemic and threatened freshwater puffer fish *Carinotetradon travancoricus* (Tetradontiformes: Tetradontidae) in Western Ghats hotspot, India. *International Journal of Aquatic Biology*, 8(5), 300-310.
- NV Kripa, PV Reyhanath, M RaziaBeevi, K Ranjeet (2020). Isolation of Streptomyces spp. with bioprospecting potential from mangrove regions of Ponnani, Kerala, India. *Journal of Aquatic Biology and Fisheries*, 8(1), 1-6.
- S Jose, K Ranjeet (2020). A New Record of Symbiotic Crab (*Harrovia elegans* de Man, 1887) from the Gulf of Mannar, India. *Thalassas: An International Journal of Marine Sciences*, 36(2), 585-588.
- CR Renjithkumar, K Roshni, K Ranjeet, BM Kurup (2021). Fishery of Malabar Labeo, *Labeo dussumieri* (Val) from the major river systems of Kerala, India. In: Impact of Climate Change Biodiversity and Environment, Associated Publishing Company.
- J Mathew, A Singh, A Gopinath (2021) Phytoplankton pigments in recently deposited sediments of a positive tropical estuary *Marine Pollution Bulletin*. 168, 112454.
- A Joy, A Gopinath (2021) The application of reefs in shoreline protection. In. Handbook of Ecological and Ecosystem Engineering- John Wiley & Sons Ltd Edited by MNV Prasad, School of Life Sciences, University of Hyderabad.
- J Mathew, A Gopinath, RA Vareed (2021) Spectroscopic characterization of humic substances isolated from tropical mangrove sediments. *Arabian Journal of Geosciences*. 14, 668
- KF Princy, A Gopinath (2021) Green synthesis of silver nanoparticles using Polar seaweed *Fucus gardeneri* and its catalytic efficacy in the reduction of nitrophenol. *Polar Science*. In Press.
- A Joy, PP Anoop, R Rajesh, J Mathew, A Mathew, A Gopinath (2020) Geochemical fractionation of trace elements in the coral reef sediments of Lakshadweep Archipelago, Indian Ocean. *Marine Pollution Bulletin*. 158, 111409.
- A Jain, KP Krishnan, N Begum, A Singh, FA Thomas, A Gopinath (2020) Response of bacterial communities from Kongsfjorden (Svalbard, Arctic Ocean) to macroalgal polysaccharide amendments (2020). *Marine Environmental Research*. 15, 104874.
- A Joy, PP Anoop, R Rajesh, A Mathew, A Gopinath (2020) Spatial Distribution and Contamination Assessment of Trace Metals in the Coral Reef Sediments of Kavaratti Island in Lakshadweep Archipelago, Indian Ocean. *Soil and Sediment Contamination: An International Journal*, 29, 209-231
- YA Pasichnaya, LO Gorbatyuk, OM Arsan, NA Platonov, SP Burmistrov, OA Godlevskaya, A Gopinath (2020) Assessment of a Possibility of the Use of Aquatic Macrophytes for Biomonitoring and Phytoindication of the Contamination of Natural Waters by Heavy Metals. *Hydrobiological Journal*, 56.
- KF Princy, A Gopinath (2020) Marine macroalgae bio fabricated silver nanoparticles as naked-eye colorimetric and turn-on fluorescent sensor for cyanide ions in aqueous media. *Environmental Nanotechnology, Monitoring & Management*
- J Mathew, A Gopinath, G Jitha, AV Rosily, OO Pasichana, LO Gorbaturk (2021) Synthesize and characterization of silver nanoparticles using mangrove humic acids and their role as catalyst in the degradation of organic dyes (2021). *Pollution Research* 40, S235-S243.
- A Gopinath, S Thomas (2021) Environment Ecology and Human Rights For the 5th Semester B.Sc Core Chemistry programme of Mahatma Gandhi University Kottayam ISBN: 978-93-89292-02-2.
- A Gopinath, P Jitha, G Resmi, P Jasmine (2020) An Introduction to Environmental Studies As per CBCS curriculum (2020) ISBN 978-93-89292-37-4, (For all Indian Universities)
- IP Kumar, P Sarkar, VS Raju, V Manikandan, A Guru, A Arshad, P Elumalai, J Arockiaraj (2020): Pathogenicity and Pathobiology of Epizootic Ulcerative Syndrome (EUS) Causing Fungus *Aphanomyces invadans* and Its Immunological Response in Fish. *Reviews in Fisheries Science & Aquaculture*. DOI: 10.1080/23308249.2020.1753167,
- TV Swetha, G Gopinath, TR Reshmi (2020) Isotope mass balance estimation of groundwater recharge in a hard rock tropical river basin in Kerala, India. *Groundwater for Sustainable Development*, Elsevier,
- G Gopinath, TR Resmi, M Praveenbabu, M Pragath, PS Sunil, R Rawat (2020) Isotope Hydrochemistry of Lakes in Schirmacher Oasis, East Antarctica, *Indian Journal of Geo-Marine Sciences*, 49 (6), 947-953
- NP Jesiya, G Gopinath (2020) A fuzzy based MCDM-GIS framework to evaluate groundwater potential index for sustainable groundwater management - A case study in an urban-peri urban ensemble, Southern India. *Groundwater for Sustainable Development*.
- TV Swetha, G Gopinath (2020) Landslide susceptibility assessment by analytical network process: a case study for Kuttiyadi river basin (Western Ghats, southern India), SN Applied Science, Springer Nature Switzerland AG
- KA Elzopy, AK Chaturvedi, KM Chandran, G Gopinath, K Naveena U Surendran (2020) Trend analysis of long-term rainfall and temperature data for Ethiopia. *South African Geographical Journal*,
- G Gopinath, U Surendran, S Abilash, KChVNagkumar, CK Anusha (2020) Assessment of drought with a real-time web-based application for drought management in humid tropical Kerala, India, *Environmental Monitoring and Assessment*, 192 (72).

# List of Publications.....

- PS Babu, KP Sudheer, MC Sarathjith, SM Mathew, G Gopinath (2020) Quality evaluation of tender jackfruit using near-infrared reflectance spectroscopy. *Journal of Applied Horticulture*, 22 (3), 171-175.
- NP Jesiya, G Gopinath, TR Resmi (2021). Comprehending the groundwater recharge of a coastal city in humid tropical setting using stable isotopes. *Journal of Environmental Management*, 287, 112260.
- NP Jesiya, G Gopinath, TR Resmi, KSA Kumar (2021). Groundwater radon(<sup>222</sup>Rn) assessment of a coastal city in the high background radiation area (HBRA), India. *Arab Journal of Geoscience*, Springer 14, 724.
- G Gopinath (2020) Geomatics for Disaster Risk Management. In: Proceedings of the 4<sup>th</sup> Disaster, Risk and Vulnerability Conference October 9th 10th - 17<sup>th</sup> & 18<sup>th</sup> 2020. Eds. KR Baiju, K Akhildev, JK Joseph, N Babu, A Idiculla, M Mohan, AP Pradeepkumar (2020)., School of environmental Sciences, Mahatma Gandhi University, Kottayam, Kerala, India – 686560. p369-370.
- PG Preena, TR Swaminathan, VJ Rejish Kumar, ISB Singh (2020) Unravelling the menace: Detection of antimicrobial resistance in aquaculture. *Letters in Applied Microbiology*
- D Jose, PG Preena, VJ Rejish Kumar, R Philip, ISB Singh (2020) Metaproteomic insights into ammonia oxidising bacterial consortium developed for bio-augmenting nitrification in aquaculture systems. *Biologia*.
- PG Preena, TR Swaminatha, VJ Rejish Kumar, ISB Singh (2020) Antimicrobial resistance in aquaculture: a crisis for concern. *Biologia*.
- S Chandhini, S Varghese, S Philip, VJ Rejish Kumar (2020) Deciphering the mitochondrial genome of Malabar snakehead *Channadiplogramma* (Teleostei; Channidae). *Biologia* 75, 741–748.
- J Greeshma, V Sneha, VJ Rejish Kumar (2020). The Fish Gut Microbiome: Prospects and Challenges. *World Aquaculture* 51(1), 62-64
- V Joseph, C Geethu, S Aparajitha, RN Ramya, S Vrinda, VJ Rejish Kumar, ISB Singh (2021). Molecular characterization of bacteria and archaea in a bioaugmented zero-water exchange shrimp pond. *SN Applied Sciences*, 3, 458.
- BC Das, DV Haridas, N Jacob, A Ramakrishnan, PHA Ali, VJ Rejish Kumar, D Pillai (2021). Outbreaks of epizootic ulcerative syndrome in Kerala, India following episodes of flooding. *Diseases of Aquatic Organism*, 143, 189-193.
- A Vijayan, VJ Rejish Kumar, D Pillai, V Joseph, ISB Singh (2021). Nitrospira as Versatile Nitrifiers: Taxonomy, ecophysiology, genome characteristics, growth and metabolic diversity. *Journal of Basic Microbiology*, 61, 88-109.
- G James, BC Das, S Jose, VJ Rejish Kumar (2021). Bacillus as an aquaculture friendly microbe. *Aquaculture International*, 29, 323-353.
- PG Preena, D Arathi, VJ Rejish Kumar, R Swaminathan T (2021). Plasmid-mediated antimicrobial resistance in motile aeromonads from diseased Nile tilapia (*Oreochromis niloticus*). *Aquaculture Research*, 52(1), 237-248.
- KG Sneha, P Robin, VJ Rejish Kumar, D Pillai (2020). Investigating the impact of hospital antibiotic usage on aquatic environment and aquaculture systems: A molecular study of quinolone resistance in *Escherichia coli*. *Science of the Total Environment*, 748, 141538.
- KG Sneha, K Rahul, VJ Rejish Kumar, P Robin, M Philip, D Pillai (2020) Detection of New Delhi Metallo-β-lactamase 1 and Cephalosporin Resistance Genes Among Carbapenem-Resistant Enterobacteriaceae in Water Bodies Adjacent to Hospitals in India. *Current Microbiology*, 77, 2886-2895.
- T Varghese, VJ Rejish Kumar, A Gopan, KV Rajendran, KA Sajina, P Mishal, AK Pal (2020) Dietary arginine modulates nonspecific immune responses in Indian Major Carp, *Cirrhinus mrigala* exposed to hypoxia. *Aquaculture*, 529, 735613.
- KV Benson, VJ Rejish Kumar, R Preetha R (2021) Nucleic acid based molecular techniques in microbial food safety. In: Devaraj T, Leo M.L.N, Saher I, Jeybalan S (Eds). Sequencing Technologies in Microbial Food Safety and Quality (ISBN:978-0-367-35118-2). CRC Press, Florida, USA
- K Rajesh (2020) Regional Comprehensive Economic Partnership Negotiations and India-Do we really miss the opportunity"? *Southern Economist*, 58 (17) 7-8
- K Rajesh (2020) "Kovidanandhara Keralam", (Kerala: Post Covid 19) (2020) "Kovid Kalam: Anubhavam, Vicharam, Vicharana", PC Ashraf, J Padanna, Sahora Books, Padanna. pp.162-168,
- K Rajesh (2020) Marunna Indian Karshika Mekhala: Oru Samakalika Avalokanam" (*Changing Indian Agriculture Sector: A Contemporary Analysis*) (2020) "Marunna India: Nayangal, Parishkarangal" Ed. J Mathew, C Pradeep, Cormetrics Technologies, Thiruvananthapuram. 44-58
- JA John (2020). Processed Foods: What is the purpose of food processing? (In Malayalam). Shasthragathy. January, 2020: 6-12.
- M Raman (2020). Fish processing and preservation (In Malayalam). Shasthragathy. January, 2020.
- M Skhariah, CD Suriyakala (2021) Gauging of Sedimentation in Idukki Reservoir, Kerala (1974–2019), and the Impact of 2018 Kerala Floods on the Reservoir. *Journal of the Indian Society of Remote Sensing*. In Press.
- N Pulickal, CD Suriyakala (2021) An exhaustive exploration of electromagnetism for underwater wireless sensor networks" 4<sup>th</sup> Springer International conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2021), 23- 24 April 2021 <https://www.springer.com/gp/book/9789811596469>
- R Rajan, L Aranganathan, SRR Rajasree (2021) chemical and biophysical properties testing of gelatin composites from cephalopods for the improvement of textural quality in sausages. ISBN- 9789390309115, Narendra Publishing House.
- L Aranganathan, SRR Rajasree, S Kumar, S Gayathri, RR Remya, TY Suman, K Govindaraju, C Jayaseelan C (2020) Growth promotion effects of humic acids isolated from co-compost prepared using fish processing waste and sugarcane bagasse on seeds of Fabaceae family. *Ecology, Environment and Conservation*, 26, S330-S338).
- MG Kriishnan, SRR Rajasree, L Aranganathan (2020) Comparative Analysis of Mono and Combined Microalgal Diets on Growth Parameters of *Salmacisbicolor* Larvae. *Thalassas: An International Journal on Marine Sciences* 36(1–4).
- L Aranganathan, SRR Rajasree, K Govindaraju, S Sivarathnakumar, S Gayathri, RR Remya, TY Suman (2020) Spectral and microscopic analysis of fulvic acids isolated from marine fish waste and sugarcane bagasse co-compost, *Biocatalysis and Agricultural Biotechnology*, 29, 101762.



# .....List of Publications.....

- S Gayathri, SRR Rajasree, TY Suman, L Aranganathan, R Thriuganasambandam, G Narendrakumar (2020) Induction of  $\beta$ ,  $\epsilon$ -carotene-3, 3'-diol (lutein) production in green algae *Chlorella salina* with airlift photobioreactor: interaction of different aeration and light-related strategies, Biomass conversion and Biorefinery. doi.org/10.1007/s13399-019-00580-5.
- MG Krishnan, SRR Rajasree, MG Karthi, L Aranganathan (2020) Spawning and larval rearing of red sea urchin *Salmacis bicolor* (L. Agassiz and Desor, 1846; Echinodermata: Echinoidea). *Iranian Journal of Fisheries Sciences* 19(6) 3098-3111.
- L Aranganathan, SRR Rajasree, RR Remya (2020) Effective Utilization of Marine Fish Industrial Processing Waste Through Co-Composting Method for Producing Organic Soil Input, MAHSA University, Malaysia, Volume 2, Issue 1, 90.
- H Maqbool, MP Safeena, KS Kumar K, AA Zynudheen, G Ninan, M Kumar (2020). Antibacterial activity of beetroot peel and whole radish extract by modified well diffusion assay. *International Journal of Current Microbiology and Applied Sciences* 9 (1), 1222-1231
- H Maqbool, Z Abubacker, MP Safeena, S Kumar (2020) Antioxidant Properties and the Preservative Effect of Whole Radish Extract on Quality of Deccan Mahseer (*Tor khudree*) Steaks during Chilled Storage *Journal of Aquatic Food Product Technology* 29 (8) 760-774
- VP Limna Mol, A Abdulaziz, KG Sneha, PJ Praveen, TV Raveendran T.V, PS Parameswaran (2020) Inhibition of pathogenic *Vibrio harveyi* using calamenene, derived from the Indian gorgonian *Subergorgia reticulata*, and its synthetic analog. *3 Biotech* 10, 248.
- MV Martin, MR Venkatesan, M. Beyline, VP Limna Mol, L Divya. (2020) Influence of environmental factors on macrofoulant assemblages on moored buoys in the eastern Arabian Sea. *PLoS ONE* 15(1): e0223560.
- SM Chacko, RD Krishnan, KG Nevin (2021) Differential Effects of p-Coumaric Acid in relieving Doxorubicin induced Cardiotoxicity in Solid Tumour Bearing and Non-tumor Bearing Mice. *Journal of Biologically Active Products from Nature*, 11(2), 138-161.
- H Sini, KS Devi, CS Anusha, KG Nevin (2021) Edible *Solanum trilobatum* chloroform extract modulates CCL 4 induced toxic changes in rat liver by enhancing the antioxidant activity. *Mediterranean Journal of Nutrition and Metabolism*, 14(2), 115-126.
- M Renjith, KG Nevin (2020) Cytotoxic profile of different extracts of *M. calabura* fruits and antiadipogenic activity of ethanol extract in 3T3-L1 cells. *Interdisciplinary Toxicology*. 13(3): 101–105.
- RD Krishnan, SM Chacko, KG Nevin (2020) HR-LCMS-MS Analysis of Methanolic extract of Coconut Kernel and its *in vitro* Cytotoxic Effect Against Human Oral Cancer Cell Line. *Journal of Advanced Scientific Research*, 11 (3), 213-219.
- KG Nevin (2020) Virgin Coconut Oil on Brain Health (2020). In: "Research Trends in Food Technology and Nutrition (Volume - 13). Eds, Akinik Publishers, New Delhi, India.
- H Sini, KG Nevin (2020) Recent Advances in *Solanum trilobatum* Research. Research Trends in Medicinal Plant Sciences (Volume - 7), eds. Dr. Manzoor Hussain, Akinik Publishers, New Delhi, India. 97-109.
- N Job, KG Nevin (2020) Phycobilins: Pigment Molecules with Potential Biological and Therapeutic Applications. In. "Advances in Biological Sciences and Biotechnology (Volume - 2)". Ed. Dr. Yogendra Singh Integrated Publications, New Delhi.
- FS Francis, (2021). Locus of Control of Individual Investors: A Segmentation Approach. *International Journal of Scientific Research in Science and Technology*, 9(3), 1-8.
- FS Francis & V Ambilikumar (2021) An Examination of Gender Dynamics in the Indian Stock Market with special reference to Kerala. *Psychology and Education*, 58(3), 1332-1341.
- FS Francis & V Ambilikumar (2021). Impact of Covid-19 cases on Global Stock Market. *Journal of Contemporary Issues in Business and Government*, 27(3), 898-917.
- FS Francis & V Ambilikumar (2021). Impact of Locus of Control on Investment Behaviour: A Segmentation Approach. *Information Technology in Industry*, 9(2), 1144-1163.
- L Peter (2020). Financial Literacy and Personal Financial Planning Among Young Employees. *Solid State Technology*, 63(5), 4054-4068.
- L Peter, V Ambilikumar, HN Ramanathan (2021). Role of Retirement Self-Efficacy in explaining Retirement Planning. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 18(4), 6393-6411.
- TS Dhanya, V Ambilikumar (2020). Impact of COVID-19 on Behavioral Intention to use Information and Communication Technology. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(12), 220-235.
- TS Dhanya, V Ambilikumar (2020). Students Perception of Servicescape and the mediating role of Comfort on assessing Business Students Satisfaction. *Solid State Technology*, 63(1s), 1454-1465.
- VP Vineetha, D Pillai, K Prasitha, TV Anilkumar (2021). *Tinosporacordifolia* ameliorated titanium dioxide nanoparticle-induced toxicity via regulating oxidative stress-activated MAPK and NRF2/Keap1 signaling pathways in Nile tilapia (*Oreochromis niloticus*). *Comparative Biochemistry and Physiology Part C – Toxicology and Pharmacology*, 240, 108908.
- KB Rajeena, VP Vineetha, D Pillai (2021). Formulation of an exoskeleton degrading bacterial consortium from seafood processing effluent for the biocontrol of crustacean parasite *Alitropustypus*. *Veterinary Parasitology*, 290, 109348.
- VP Vineetha, G Asha, D Pillai (2021). *Withania somnifera* attenuates Tilapia Lake virus (TiLV)-induced mortality by inhibiting stress and strengthening the innate antioxidant defence system. *Aquaculture Research*, 00, 1-13. In Press
- V Murugadas, S Pailla, MR Badireddy, D Pillai, CN Ravishankar, MM Prasad (2021) Antimicrobial resistance in *Vibrios* of shrimp aquaculture: Incidence, identification schemes, drivers and mitigation measures. *Aquaculture Research* In Press
- KB Rajeena, d Namitha, D Pillai (2021). Changes in the proximate and elemental composition of *Alitropus typus* (Crustacea: Flabellifera: Aegidae) exposed to lethal dose of bacterial consortium. *Journal of Parasitic Diseases*. In Press
- DV Haridas, D Pillai (2020) Quorum quenching potential of *Enterococcus faecium* QQ12 isolated from gastrointestinal tract of *Oreochromis niloticus* and its application as a probiotic for the control of *Aeromonas hydrophila* infection in goldfish *Carassius auratus* (Linnaeus 1758). *Brazilian Journal of Microbiol.*
- A Rehana, D Pillai (2021) Manual on 'Fish Toxicology'. Department of Aquatic Animal Health Management, KUFOS

## List of Publications.....

- N Babu, PJ Gopika, A Dinakaran, M Raman, TV Sankar, TKS Gopal (2020). Development and characterization of marine fiber enriched biscuits. *Food Science Research Journal*, 11(3), 140-150.
- N Babu, A Dinakaran, M Raman, A Ravindran, TV Sankar, TKS Gopal (2020). Development of jackfruit leather and its shelf-life analysis in different packaging materials. *Food Science Research Journal*, 11(2), 158-168.
- A Ravindran, M Raman, N Babu, A Dinakaran, TV Sankar, TKS Gopal (2020). Diet Chocolates and Replacement of Cocoa Powder with Jackfruit Seed Powder. *Food and Nutrition Sciences*, 11(03), 220.
- MR Joy, JA John (2020). Development of herbal infusion in fruit juice using guava leaves: Nutritional and antioxidant properties. Conference Proceedings in the International Web Conference on Food and Nutrition Security for Sustainable Public Health, Dept. of Food Science and Nutrition, Nehru Arts and Science College, Coimbatore. 22<sup>nd</sup>-23<sup>rd</sup> Oct, 2020, pp. 136-141. ISBN No. 978-93-80769-99-88.
- A Ravindran, JA John (2020). Processed banana inflorescence (*Musa paradisiaca*): Prospects as an ingredient if functional foods. Conference Proceedings in the International Web Conference on Food and Nutrition Security for Sustainable Public Health, Dept. of Food Science and Nutrition, Nehru Arts and Science College, Coimbatore. 22<sup>nd</sup>-23<sup>rd</sup> Oct, 2020, pp. 88-93. ISBN No. 978-93-80769-99-88.
- KS Gayathry, JA John (2021). Banana Pseudostem: Prospects of Value Addition. *Kerala Karshakan*, 8 (10): 42-47.
- A Ravindran, JA John, S Jacob (2021). Nutritional, functional and shelf-life assessment of processed banana inflorescence (*Musa paradisiaca*). *Journal of Postharvest Technology*, 9 (2), 58-70.
- JA John, BC Ghosh (2021). Production of whey protein hydrolyzates and its incorporation into milk. *Food Production, Processing and Nutrition*, 3: 9.
- B Aaliya, KV Sunooj, M Navaf, PP Akhila, C Sudheesh, SA Mir, S Sabu, A Sasidharan, MT Hlaing, J George (2021). Recent trends in bacterial decontamination of food products by hurdle technology: A synergistic approach using thermal and non-thermal processing techniques. *Food Research International*, 147, 110514, ISSN 0963-9969.
- PP Akhila, KV Sunooj, B Aaliya, M Navaf, C Sudheesh, S Sabu, A Sasidharan, SA Mir, J George, AM Khaneghah (2021). Application of electromagnetic radiations for decontamination of fungi and mycotoxins in food products: A comprehensive review. *Trends in Food Science & Technology*. 114, 399-409. ISSN 0924-2244.
- M Navaf, KV Sunooj, B Aaliya, C Sudheesh, PP Akhila, S Sabu, A Sasidharan, J George (2021). Talipot palm (*Corypha umbraculifera* L.) a nonconventional source of starch: Effect of citric acid on structural, rheological, thermal properties and in vitro digestibility. *International Journal of Biological Macromolecules*. 182, 554-563, ISSN 0141-8130.
- S Sabu, KAM Xavier, A Sasidharan (2021) Efficacy of pomegranate phenolic extract and chitosan as an edible coating for shelf life extension of Indian white shrimp during refrigerated storage. *J Package Technol Res* 5, 59–67.
- C Sudheesh, KV Sunooj, V Jamsheer, S Sabu, A Sasidharan, B Aaliya, M Navaf, PP Akhila, J George (2021) Development of Bioplastic Films from  $\gamma$ –Irradiated Kithul (*Caryota urens*) Starch; Morphological, Crystalline, Barrier, and Mechanical Characterization. *Starch – Stärke*. 73, 2000135.
- MK Rasweefali, S Sabu, KVSunooj, A Sasidharan, KA Martin Xavier, (2021). Consequences of chemical deacetylation on physicochemical, structural and functional characteristics of chitosan extracted from deep-sea mud shrimp. *Carbohydrate Polymer Technologies and Applications*. 2, 100032, ISSN 2666-8939.
- V Venugopal, A Sasidharan (2020). Seafood industry effluents: Environmental hazards, treatment and resource recovery. *Journal of Environmental Chemical Engineering*. 9(2), 104758, ISSN 2213-3437.
- S Anjana, A Sasidharan, B Varghese, S Sabu, KV Sunooj, KA Martin Xavier (2020). Performance evaluation of ultra violet assisted vertical recirculating depuration system on microbial, heavy metal reduction and composition of black clam (*Villorita cyprinoides*). *LWT*, 138, 110628, ISSN 0023-6438.
- STJ Thomas, G Archana, A Sasidharan, S Sabu, KV Sunooj, TKS. Gopal (2020). Process Standardization of Ready-to-eat Pasteurized Crab spread from Marine Blue Swimming Crab (*Portunus pelagicus*) Incorporated with Threadfin Bream Surimi. *Fishery Technology* 57: 258 – 266.
- A Sasidharan, MK Murthi, S Sabu, KV Sunooj (2020) Valorisation of Basa (*Pangasianodon hypophthalmus*) Skin Waste into Quality Leather Using a Non Chrome Treatment Method. *Journal of Aquatic Food Product Technology*, 29:10, 1041-1053.
- A Sasidharan, VJ Michu, C Pradhan, S Sabu (2020). Utilisation of isoelectric precipitation to recover fish protein isolate from seafood processing waste. *Indian J. Fish.*, 67(3): 99-105.
- C Sudheesh, KV Sunooj, B Bhavani, B Aaliya, M Navaf, PP Akhila, S Sabu, A Sasidharan, SK Sinha, S Kumar, VA Sajeevkumar, J George (2020). Energetic neutral atoms assisted development of kithul (*Caryota urens*) starch–lauric acid complexes: A characterisation study, *Carbohydrate Polymers*, 250, 116991, ISSN 0144-8617.

### Abstracts

- G Gopinath, NP Jesiya, U Surendran (2020). A GIS-based Fuzzy AHP method for landslide vulnerable zonation in selected segments of Western Ghats in Northern Kerala, Southern India. Proceedings of International Conference on 'Impact of Climate Change on Hydrological Cycle, Ecosystem, Fisheries and Food security'- (ClimFishCon 2020), during 11-14 February 2020, p40.
- NP Jesiya, G Gopinath (2020). Groundwater Potential Assessment using GIS based Fuzzy-AHP Approach in Phreatic Aquifers of Urban Clusters of Kozhikode District, Kerala, Southern India. Proceedings of III<sup>rd</sup> Indian National Groundwater Conference-INGWC-2020 Organized by KSCSTE-CWRDM, Kozhikode during February 18 – 20, 2020, Kozhikode, India, p322.
- G Gopinath, NP Jesiya, U Surendran (2020). Assessing landslide susceptibility using GIS-AHP method in selected areas of Western Ghats in Northern Kerala, Southern India. Proceedings of III<sup>rd</sup> Indian National Groundwater Conference-INGWC-2020 Organized by KSCSTE-CWRDM, Kozhikode during February 18 – 20, 2020, Kozhikode, India, p152.



## List of Publications

G Gopinath, TR Resmi, P Arjun (2020). Estimation of radon concentration in groundwater of coastal area in Kasaragod district of Northern Malabar, Kerala, India. Proceedings of III<sup>rd</sup> Indian National groundwater Conference-INGWC-2020 Organized by KSCSTE-CWRDM, Kozhikode during February 18–20, 2020, Kozhikode, India, p283.

T Swetha, G Gopinath (2020). Evaluation of Hydrochemical Facies and Hydrogeochemical Process in Phreatic Aquifer System of a Tropical River Basin, Kerala. Proceedings of III<sup>rd</sup> Indian National groundwater Conference-INGWC-2020 Organized by KSCSTE-CWRDM, Kozhikode during February 18–20, 2020, Kozhikode, India, p261.

### Popular Press

K. Rajesh. "Thiranjeduppu Prakriya, Prakritham, Ashasthreeyam", (Outdated and unscientific election process), appeared in the editorial page of Maathrubhumi News Paper on 8<sup>th</sup> March, 2020.

K. Rajesh. "Marunna Kaalathe Adhyapaka Niyamanam", (Teachers Appointments in the New Era), appeared in the editorial page of Maathrubhumi News Paper on 7<sup>th</sup> February, 2020.

K. Rajesh. "Kanakkile Kalikal" (Mathematical gimmicks), write up in connection with Union Budget 2021 appeared in Mathrubumi News Paper on 1<sup>st</sup> February, 2020

K. Rajesh. "Kovidanadhara Keralathinte Athijeevanathinte Vazhikal", (Surviving Strategies to be adopted by the Kerala state during the Post Covid period), appeared in the editorial page of Madhyamam paper on 25<sup>th</sup> November, 2020.

K. Rajesh. "RCEP Kararile Indyan Asannidhyam Nettamo Kottamo?" (RCEP Agreement without India: Gain or Loss", appeared in the editorial page of Maathrubhumi News Paper on 21<sup>st</sup>, November, 2020.

K. Rajesh. "Adrishyakarathinu Shakthi Pakaran Oru Smithian Aparatha" (Union Budget Analysis), appeared in the editorial page of Maathrubhumi News Paper on 3<sup>rd</sup>, February, 2020.

K. Rajesh. "Aayasarahitha Jeevitham Sadhyamavumo" (Is it Possible to be Hustle free life), appeared in the editorial page, Mathrubhumi News Paper on 6<sup>th</sup> July, 2019

K. Rajesh. "Marende Thiranjeduppu Nadathippu" (Don't we need to change the Election Procedure?), appeared in the editorial page, Mathrubhumi News Paper on 17<sup>th</sup> May, 2019.

K. Rajesh. 'KIIFB's Masala Bond Issue: A Derailed Debate', Madhyamam English Online edition, dated May 4<sup>th</sup> 2019

K. Rajesh. "Karshika Billukalum Karshakarum", (Farm bills and farmers), pp.50-63, "Moolysruthi Magazine", November, 2020

K. Rajesh. "Kuthikkunna Sarnnam: Kithayakkunna Sambad Vyavastha" (Rising Gold Prices and Falling Growth Rate of the Economy", Mathrubhumi GK & Current Affairs, (Mal.), September, 2020

K. Rajesh. "Virus Akramanam: Navaloka Nirmithikku Vaathil Thurakkumbol" (Virus Attaach: Opportunity for a New World Order", pp. 12-14, Mathrubhumi GK & Current Affairs, (Mal.), May, 2020.

K. Rajesh. "Vipanikku Shakthi Pakarumbol", (Strengthening the Financial Market), pp.28-30, Mathrubhumi GK & Current Affairs, (Mal.), March, 2020.

K. Rajesh. "Prathisandhikkalathe Bank Layanam", (Bank Merger during the time of Economic Turmoil), pp.10-14, Mathrubhumi GK & Current Affairs, (Mal.), October, 2019

K. Rajesh. "Avasaram Kaathu Cheruppakkarude Rajyam", (Youngster's Country is Waiting for Opportunities", pp.16-18, Mathrubhumi GK & Current Affairs, (Mal.), July, 2019

C Pradhan, A Sasidharan (2021) Sensory Characteristics: A novel way of evaluation of food fishes. The Indian Journal of Science & Technology. 2(3): 53-58.

A Sasidharan, V Venugopal (2020). Recovery of Functional Proteins from Seafood Processing Discards and their Applications. AFSTI, Mumbai Chapter Newsletter, June 2020. vpp 2-4

### Conference publications

L Aranganathan, SRR Rajasree, R Balachandar, SD Kumar, M Tamilventhan (2021) Spectroscopic evaluation of co-compost developed using fish processing waste and its growth promotion effect on vegetable seedlings. AICTE International e-conference on bioprospecting - 5<sup>th</sup> International conference on bioenergy, environment and sustainable technology, 29-30<sup>th</sup> January, 2021.

R Rajan, PK Bincy, SRR Rajasree. Fabrication of Gelatin/Chitosan/Zeolite Composite Packaging Film for Enhancing the Quality of Fresh Meat During Storage, 2020. Abstract In: *Proceedings International*, Platinum Open Access Journal (ISSN 2668-6384), Volume 2, Issue 1, 2020, 53.

M Gobalakrishnan, SRR Rajasree, MG Karthih, L Aranganathan (2020) Determination of nutritional aspects and anti-oxidant properties of gonads of sea urchin- *Salmaicis bicolor* Proceedings International of ICBHE-2020 conference, 2(1)2020

R Rajan, L Aranganathan, SRR Rajasree. chemical and biophysical properties testing of gelatin composites from cephalopods for the improvement of textural quality in sausages, International Conference on Impact of Climate Change on Hydrological cycle, Ecosystems, Fisheries and Food Security, 8-10th August, 2020, CUSAT.

L Aranganathan, SRR Rajasree, R Remya, TY Suman, S Gayathri (2020) Evaluation of biomolecular characteristics and phytotoxic effects of organic fish cocomposts developed from fish industrial processing wastes, 3rd International conference on Biotechnology and biological sciences (Biospectrum), University of Engineering & Management.

L Aranganathan, SRR Rajasree, RR Remya (2020) Effective Utilization of Marine Fish Industrial Processing Waste Through Co-composting Method for Producing Organic Soil Input, MAHSA University, Malaysia, <https://doi.org/10.33263/Proceedings21.090090> Volume 2, Issue 1, 2020, 90.

## List of Programmes participated by Faculty Members and Students.....

### Cruise:

As part of the student training program, eight M.Sc. Marine Biology Semester II students from the Kerala University of Fisheries and Ocean studies (KUFOS) got an opportunity for participating in the cruise onboard MGS SAGAR, organized by National Centre for Polar and Ocean Research (NCPOR). The major objective of the cruise was to carry out multi-beam bathymetry survey in the Bay of Bengal region as part of Exclusive Economic Zone (EEZ) mapping program. Along with multi-beam survey, marine magnetic and Gravity survey and CTD operation are carried. The cruise started from Visakhapatnam, 29th January, 2020 and was completed on 10th February, 2020 (13 days onboard). The cruise team include Akshara C., Amina Majeed, Ayana S., Hency Maria Sunny, Meera M. Nair, Nimya S. Kumar, Ramshad T.S. and Rahul S. Krishnan.



### Field Trip

As part of the curriculum, the students of Second Semester M.Sc. Marine Biology undertook a field trip to southern coastal regions of Kerala on 20th and 21st February 2020. The visit was aimed to collect the flora and fauna of rocky and sandy shores and also to visit the aquarium of CMFRI Vizhinjam. Accordingly, they visited Thirumullavaram, Varkala, Vizhinjam harbour and landing area and CMFRI Vizhinjam aquarium. Specimens of rocky, sandy and intertidal organisms as well as marine finfishes were collected and preserved in appropriate media. The specimens were then analysed and taxonomically classified in the laboratory.



On February 5, 2021 M tech Coastal & Harbour Engineering students attended Webinar on 'Shore protection by recent & Evolving Techniques- Assessment and Sedimentation' (SPREAD 2021), organised by NIOT, Chennai and on March 23, 2021 they attended an E – Symposium- 'The Ocean, Our Climate and Weather', organised jointly by India Meteorological Department (IMD), Indian Meteorological Society (IMS) and Ocean Society of India (OSI) on the occasion of World Meteorological Day.



Fifty students from BSc 2017 and 2018 batches (25nos. from each batch) participated in 2<sup>nd</sup> Professional Student Summit 2020, a one day event, organised by Ministry of Higher Education, Govt. of Kerala and Additional Skill Acquisition Programme (ASAP), Kerala. The event held on 15<sup>th</sup> February 2020 at Cochin University of Science and Technology, Kalamassery. During the event, students had attended two sessions in the field of fisheries and interacted with the mentors of the session viz., Dr. S Ayyappan and Dr. Krishna R Salin. BSc 2017 batch student, Mr. Mohammed Salih, selected from the participants to present the take away message of the event in the feedback session in front of Honourable Chief Minister, Shri. Pinarayi Vijayan and other chief guests. Faculty co-ordinator Dr. Jayalakshmi, K J Asst. Professor, Dept. of FRM, co-ordinated all the activities and accompanied the student for the event; with the support and instruction from Dr. Riji John, Dean, Faculty of Fisheries, Who was the co-ordinator in University level.

Dr. Devika Pillai, Professor and Head Department of Aquatic Animal Health Management Handled classes on 'Health Management in Aquaculture' in the "Obligatory three months training for the Asst. Directors of AHD" - 19th May to 18th July 2021, organized by the Directorate of Entrepreneurship, Kerala Veterinary and Animal Sciences University on 10 February, 2021 and 16 April 21

Dr. Devika Pillai, Professor and Head Department of Aquatic Animal Health Management Delivered a keynote lecture on 'Implications of Antimicrobial Resistance spread in waterways: Environmental presence & source hotspots' on the occasion of Annual meeting of ASPIC Club 2021 on 25th March, 2021.

Dr. Devika Pillai, Professor and Head Department of Aquatic Animal Health Management delivered a talk on 'Role of women in Fisheries in India' on the occasion of International Women's Day on 8 March, 2021 in the theme "Women Leadership in Agriculture: Entrepreneurship, Equity and Empowerment" as guided by ICAR organized by National Bureau of Fish Genetic Resources (NBFGR), Lucknow.



Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management chaired the session on Sustainable Marine Fisheries Management in the International Webinar on Sustainable Marine Fisheries and Aquaculture: Policies, Packages and Perspectives in Blue Economy Paradigm (SMART P3BLUEECO-2021) March 12-13, 2021. Organized by Department of Aquatic Biology and Fisheries, University Of Kerala, Thiruvananthapuram - 695581, Kerala State, India.

Dr. Devika Pillai, Professor and Head Department of Aquatic Animal Health Management delivered a talk on 'Fish Health Management and Disease Control Strategies' in the Fish Farmers Meet organized by the State Fisheries Department on 1st March, 2021

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Invited talk on “Fish Health Management in Current Scenario in Kerala – An Overview and Interaction” organized by Kerala Veterinary and Animal Sciences University, Pookode, Wayanad on February 10, 2021.

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Handled a class on 'Diseases in Ornamental fishes and their management' in the Training Programme on 'Ornamental Fish Culture' organized by KUFOS and Fisheries Dept. on December 21, 2020

Devika Pillai delivered a talk on 'Biofloc Technology: Prospects in freshwater aquaculture' 'Webinar on Biofloc Technology in Aqua farming: Its prospects in income generation' Organized by NAHEP-CAAST, ICAR-CIFE, Mumbai on 15 December, 2020

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Invited talk on Mini One-Health Summit on Antibiotic Resistance “Antibiotic Use in Aquaculture and Surveillance of Environmental Resistance” on November 23, 2020 organized by ReAct Asia-Pacific

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Handled a class on 'Diseases in Ornamental fishes and their management' on November 21, 2020 in the Training Programme on 'Ornamental fish farming' for VHSE students from November 18-21, 2020

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Handled a class on 'Fish health & disease management' in the training programme on 'Monoculture of freshwater fish in ponds' organized jointly by the State Fisheries Dept. and KUFOS on 27 August, 2020

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Delivered a talk on 'Adoption of best management practices: a key to disease prevention in aquaculture' in the National Webinar on 'Aquatic Animal Health Management for Sustainable Aquaculture' on the Occasion of the Release of Standard Operating Procedures for Aquatic Animal Health Management', 25 August, 2020

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Rakesh C.G., Senior Research Fellow, handled a class on 'Shrimp health management' for Fisheries - NIFAM- Trainers Training Programme for Vocational Higher Secondary School Teachers & Instructors on 5 March, 2021

Dr.Devika Pillai, Professor and Head Department of Aquatic Animal Health Management

Vineetha V.P. Implications of *Tinosporacordifolia* in titanium dioxide nano particle-induced toxicity in Nile tilapia (*Oreochromis niloticus*). Vineetha V.P. was a Speaker in the 4th Webinar on Agriculture, Food & Aqua organized by Coalesce Research Group on 29-30, July 2021 with the theme “Discovering Natural Treasures and focusing on Modern innovations in Agriculture, Food and Aqua”.

Dr.Rajeev Raghavan, Asst Professor, Dept of Fisheries Resources Management delivered an invited Talk at the Conservation of Life Below Water: Perspectives on Systematics, Sustainable Livelihoods and Citizen Science (COLIBA-2021), organized by the Department of Aquatic Biology and Fisheries, University of Kerala, India, 20th March 2021.

Dr.Rajeev Raghavan served as a Resource Person in the International Training Workshop on Ichthyotaxonomy (ITWIT 2021) held from 23rd to 27th March 2021 jointly organized by the Kerala University of Fisheries and Ocean Studies (KUFOS) and the Department of Aquatic Biology and Fisheries, University of Kerala. More than 200 researchers and students from around 36 countries participated in the workshop, and talks were delivered by 22 of the world's leading taxonomist and systematists from 12 countries.

Dr.Anu Gopinath, Asst Professor, Department of Aquatic Environment Management delivered an Invited talk at Tamil Nadu Fisheries University on 26.08.2020 in the Virtual Conference on "Oceans in the Wake of Climate Change: Challenges and Solutions".

Dr.Anu Gopinath, Asst Professor, Department of Aquatic Environment Management delivered an Invited talk at SCMS, Kochi in connection with International Day of Women and Girls in Science. 11.02.2021.

Dr.Anu Gopinath, Asst Professor, Department of Aquatic Environment Management delivered an Invited talk at Department of Aquatic Biology, Kerala University on 25.11.2020. Topic is “Women in the Arctic”.

Dr. Rejish Kumar V.J, Dept. of Aquaculture has served as a resource person on the topic "Physico-chemical parameters and its management" for the online NIFAM- Trainers Training Programme for Vocational Higher Secondary School Teachers & Instructors organized by NIFAM, Kerala on March 4, 2021.

## List of Programmes participated by Faculty Members and Students.....

Dr. Rejish Kumar VJ, Dept. of Aquaculture has served as a resource person on the topic "Water Quality and Health Management in Aquaculture" for the Three months training for Assistant Directors of Department of Animal Husbandry, Kerala organized by the Directorate of Entrepreneurship, Kerala Veterinary and Animal Sciences University. on February 10, 2021.

Dr. Rejish Kumar V.J, Dept. of Aquaculture has served as a resource person on the topic "Physico-chemical parameters and its management" for the online STP training programme "Ornamental Fisheries - Practices and Prospects" organized by the State Fisheries, Kerala on January 11, 2021.

Dr. Rejish Kumar V.J, Dept. of Aquaculture has served as a resource person on the topic "Water quality management in sustainable aquaculture production systems" for the National workshop on water quality management for aquaculture organized by National Institute of Technology, Puducherry, Karaikal on November 16, 2020.

Er.George Basil Asst.Professor of School of Ocean Engineering & Underwater Technology attended the online workshop "9011 IIRS Outreach Programme- "Basic Principles of Remote Sensing Technology" from" conducted during April 13 th - April 25 th 2020 Er.Merin Skariah Research Scholar has attended the Webinar on "Ensuring Water Security for Future" on 08 May 2020 organized by KSCSTE, Trivandrum

Dr.Linu Salim , Asst Prof of School of Ocean Engineering & Underwater Technology attended International webinar "How molecular evolution influences structure of proteins organized by SAFI Institute of Advanced studies, Malappuram, Kerala on 30 th May 2020

Er.Merin Skariah, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop "9011 IIRS Outreach Programme- "Basic Principles of Remote Sensing Technology" from" conducted during April 13 th - April 25 th 2020

Er.Basim basheer, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop "9011 IIRS Outreach Programme- "Basic Principles of Remote Sensing Technology" from" conducted during April 13 th - April 25 th 2020

Er.Nebupulickal ,Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop "9011 IIRS Outreach Programme- "Basic Principles of Remote Sensing Technology" from" conducted during April 13 th - April 25 th 2020

Er.Nebupulickal, Research scholar of School of Ocean Engineering & Underwater Technology attended the online course "Python for data science and machine learning boot camp " organized by udemy online platform conducted during April 30th to May 10th 2020

Er.Basim baBheer, Research scholar of School of Ocean Engineering & Underwater Technology attended the webinar on " Ensuring Water security for future " on 08 May 2020 organized by KSCSTE, Trivandrum

Girish Gopinath, Asso Professor, School of Fishery Environment attended Online Training Programme on "Climate Change, Landslides And Safe Hill Area Development" 05-07 August 2020 organized by National Institute of Disaster Management, Ministry of Home Affairs, Government of India

Girish Gopinath, Asso Professor, School of Fishery Environment Delivered a lecture on "Geospatial Technology in Drought Risk Mapping using free data and Open Source Software", on 24th July 2020 (Online mode), in connection with Faculty Development Programme on Climate Change and Hydrologic Extremes organized by Department of Civil Engineering, Karunya Institute of Technology and Sciences, TN in collaboration with ISRO/GoI, Regional Remote Sensing Centre-South (Virtual Mode).

Girish Gopinath, Asso Professor, School of Fishery Environment Invited talk on "Data available from Remote Sensing" in connection with AICTE sponsored one Week short term training program on Basics of Remote Sensing, GIS and GNSS (Phase II) on 21/09/2020, Organised by Department of Civil Engineering, Francis Xavier Engineering College, Tirunelveli- Tamil Nadu (Virtual Mode).

Girish Gopinath, Asso Professor, School of Fishery Environment Keynote talk on "Geoinformatics for Disaster Risk Management" in connection with International Conference on Disaster, Risk and Vulnerability Conference - 2020 (DRVC 2020) on 9/10/2020, Organized by School of Environmental Sciences, Mahatma Gandhi University, Kottayam during 9-10 October and 16-17 October 2020 (Virtual Mode).

Girish Gopinath, Asso Professor, School of Fishery Environment Delivered talk on "Satellite Remote Sensing in Climate and Hydrology" in connection with FDP on CLIMATIC SCIENCES sponsored by AICTE and conducted by School of Environmental Studies, CUSAT, on 12/11/2020.

Girish Gopinath, Asso Professor, School of Fishery Environment Invited talk on Drought Mitigation through Development and Management of Springs in The Selected Region of Western Ghats for Community Water Supply Scheme on 29th December 2020, in connection with Two days webinar on "Spring Water Supply and Its Sustainability in Parts Of Western Ghat Regions Of India" on 28 & 29, December, 2020. Organized by National Institute of Hydrology (NIH), Hard Rock Regional Centre, Belagavi in collaboration with GSDA

Girish Gopinath, Asso Professor, School of Fishery Environment Delivered a lecture on 'Geoinformatics for Disaster Risk Management' on 03.03.2021 in connection with Short Term Course on Disaster Management for University/College teachers from 26th February to 04th March, 2021 organized by UGC-Human Resource Development Centre (HRDC), University of Calicut

Girish Gopinath, Asso Professor, School of Fishery Environment Invited talk on Application of Geospatial Technology in Water Resources Management with reference to Climate Smart Agriculture on 04.03.2021, in connection with DST sponsored training programme on "Soil and Water Conservation Technologies for Climate Smart Agriculture in the context of Extreme Weather Events" during 22nd Feb., 2021 - 05th March, 2021 organised by ICAR-IISWC, Research Centre, Udhamandalam, Ooty, Tamil Nadu



Dr. V.P. Limna Mol, Asst Professor, Marine Biology Dept has attended a 5 - day online Faculty Development Programme on "Methodology & Data Interpretation of Analytical Instrumentation Techniques" from 15-19 June 2020 organised by Sathyabama Institute of Science and Technology, Chennai, in association with Ministry of Earth Sciences – Earth Science Technology Cell.

Dr V. P. Limna Mol attended the 3 weeks UGC sponsored Faculty Orientation Programme conducted by Human Resource Development, Mizoram Central University from 28th July-17th August, 2020.

Dr. V. P. Limna Mol and Dr. T.K. Sirajudheen coordinated the "2020 Trees Challenge" programme organised by the School of Ocean Science & Technology in connection with the World Environment Day 2020. About 100 participants from schools, colleges and universities and few green initiative organisations across Kerala registered for the event and a total of 2162 saplings were planted as part of the event. All 32 students of M.Sc. Marine Biology semester II participated in the event.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology served as Course Director: Training of Trainers (ToT) Programme on Value Added Food Products and By-products Development From Freshwater Fishes (Funded by: NIAEM, Ministry of Agriculture & Farmers Welfare, Govt. of India, 18-22nd January, 2021).

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology served as Course Director: 5 Day Residential Entrepreneurship Development Training In Fish Processing Technology & Value Addition Of Fish & Fishery Products (Funded by: NIAEM, Ministry of Agriculture & Farmers Welfare, Govt. of India, 09-13TH march, 2020).

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology served as Chairperson (Session 1. Biowaste Utilization) - International Workshop jointly Organized by International Foundation for Science (Sweden) & Organization for Prohibition of Chemical Weapons, Hague, The Netherlands, 25-26th November, 2020.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology served as Resource person (Fish Processing Technology) National Webinar on Blue economy : repercussions-Fishery resources, aquaculture, Fish Processing Technology, CUSAT, 15th June, 2021.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology served as Resource person in E-course on Seafood safety and Quality control organized by Marine Safety College, Tuticorin. 11th -24th November, 2020.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology attended FAO United Nations-CIHEAM, Zaragoza, Spain collaborative International training on Innovative tools and methods for ensuring seafood authenticity, 24th April to 6th May, 2021.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology attended Commonwealth of Learning-IIT Karagpur-BHU collaborative 8 weeks agMOOC course on Agriculture Extension, 13th May- 30th June, 2020

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology attended National Workshop on Ethics in Biomedical and Health Research: Perception and Practice 5-8th July, 2021 "Organized by NUCSER & DST NU-TEC.

Dr. Radhika Rajashree S.R. Professor and Head of Department of Fish Processing Technology attended NFDB sponsored PMSSY national online training on Development of shrimp based value added products, 4-5th March, 2021 and FDB sponsored PMSSY national online training on Production of highvalued secondary products, 4-5th March, 2021.

Dr. K. Manjusha, Assistant Professor, Department of Microbiology was nominated as a Member of Combined UG and PG Board of Studies of Microbiology, Mahatma Gandhi University, Kottayam in June 2021. Also served as Combined UG and PG Microbiology Board Member from 2017-2020

Dr. Nevin KG, School of Ocean Science and Technology has successfully completed a 4-Week Induction/Orientation Programme for "Faculty in Universities/Colleges/Institutes of Higher Education" organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Human Resource Development, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching, from September 01 - September 30, 2020 and obtained a grade A+.

Dr. Nevin KG attended a Two Weeks MOOC course on MANAGING ONLINE CLASSES and CO-CREATING MOOCs:2.0, Organised by Ramanujan College, Delhi under the ministry of Human Resources, Government of India. From 18th May -3rd June 2020.

Dr. Nevin KG attended One Week Faculty Development Programme on "Open Source Tools for Research" Organised by Ramanujan College, Delhi under the ministry of Human Resources, Government of India from June 08 - June 14, 2020.

Dr. Nevin KG attended 4 -day online training course on Mass Spectrometry in Proteomics organized by Amazing Biotech PVT. LTD, Chennai, 15-18th July 2020.

Dr. Nevin KG attended a Live webinar on Higher education post Covid 19 - Organised by Rungta Group of Institutions, Raipur, Bihar, 23rd May 20

Dr. Nevin KG attended a webinar on Lipid Metabolism of macrophage/Foam Cells in Atherosclerosis, organized by Department of Biochemistry, University of Kerala, Kariavattom Campus, Thiruvananthapuram on 15th September 2020.

Dr. Nevin KG attended the International Seminar on Recent Biochemical Approaches in Therapeutics (RBAT-VII) – 2021 organized by Department of Biochemistry, University of Kerala, Kariavattom Campus, Thiruvananthapuram on 9-11 February, 2021.

## List of Programmes participated by Faculty Members and Students.....

Dr. Nevin KG attended a Webinar on Micro/nano system Technology and Processes-An Industry Perspective, Organized By Saint Gits College of Engineering, Kottayam, Kerala, 25 May 2020.

Dr. Nevin KG was appointed as the Chairman for the scrutiny of B.Sc and M.Sc Biochemistry question papers, by the Controller of Examinations, University of Kerala, May-June 2021.

Dr. Nevin KG participated in the Workshop on “Protein Structure Modeling and Visualization“ organized and conducted by BIOINFORMATICS FACILITY, Rajiv Gandhi Centre for Biotechnology (RGCB) virtually on 19th May 2021.

Dr. Nevin KG attended participated in a three day international webinar series on Food Chemical and Nanomaterials Toxicity organized by Sree Chitra Tirunal Institute for Medical Sciences & Technology and Central University of Kerala, in association with Kerala Academy of Sciences, 26-28 November 2020.

Dr. Maya Raman delivered Expert talk as a resource person in Webinar II on “COVID-19: Food Safety and Nutrition” organized by Department of Biotechnology, Christ College, Rajkot on 30 May, 2020.

Dr. Maya Raman handled the session in MANAGE-KUFOS Collaborative Online Training Programme on “Value added Food Products and By-products Development from Freshwater Fishes” during January 18-22, 2021, at KUFOS

Dr. Maya Raman attended 5th Biennial Conference of PAI and International Symposium on Probiotics and Immunity: Way forward to microbial therapy, jointly organized by PAI and ICAR-NDRI on November 19-20, 2020.

Dr. Maya Raman attended 2-week Faculty Development Programme on Advanced Concepts for Developing MOOCS from July 02 to July 17, 2020, organized by Teaching Learning Centre, Ramanujan College, University of Delhi sponsored by Ministry of Human Resource Development, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching.

Dr. Maya Raman attended 1-week Faculty Development Programme from November 25 to December 01, 2020, on Higher Education: Road ahead developing next generation academic leaders, conducted by Department of Commerce and IQAC, Sri Venkateswara College, University of Delhi in collaboration with Teaching Learning Centre, Ramanujan College and Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching.

Dr. Maya Raman participated and was the Organizing Committee Member of the 6th International Conference on Sustainable Utilization of Tropical Plant Biomass-Opportunities for innovation and entrepreneurship in Kerala organized by School of Bioscience, IUCOFSA, BIIC, MG University Kottayam, on 14 & 15 December, 2020.

Dr. Jenny Ann John, Assistant Professor, Dept of Food Science and Technology was appointed as Member of Board of Studies in Food Technology under the Faculty of Science, University of Calicut for a period of three years from 11th February, 2020.

Dr. Jenny Ann John attended the 3 weeks UGC sponsored Faculty Orientation Programme conducted by Human Resource Development, Mizoram Central University from 28th July-17th August, 2020.

Dr. Jenny Ann John Participated in the webinar on COVID-19: Food Safety and Nutrition organized by the Department of Biotechnology, Christ College, Rajkot on 30th May, 2020.

Dr. Jenny Ann John Participated in the National Webinar on 'Pharmacological Potential of A1 and A2 milk: Myths and Facts, by Indian Society of Veterinary Pharmacology and Toxicology on 11th August, 2020.

Dr. Jenny Ann John Participated in the International Web Conference on Food and Nutrition Security for Sustainable Public Health, held on 22nd & 23rd October 2020, organized by Nehru Arts and Science College, Coimbatore.

Dr. Jenny Ann John Participated in the webinar, “Digital Classroom – the Agile way”, organized by ICT Academy of Kerala on 24th June, 2020.

Dr. Jenny Ann John Completed 8 weeks NPTEL Online Certification Course (Funded by the Ministry of HRD, Govt of India) “Nanotechnology in Agriculture” offered by IIT Kharagpur, with 90% marks (Elite +Gold certificate). Equivalent to full FDP of 1 week.

Dr. Jenny Ann John Participated in 2-day Training Program on “Transforming Agri-business with Artificial Intelligence, Machine Learning and Block Chain Technologies”, organized by National Institute of Agricultural Extension Management (MANAGE), Hyderabad from 15-16 Feb, 2021.

Ms Gayathry K.S, Ph.D scholar was selected as one of six recipients globally from among ASTA group members to receive the Susan L. Abbott Memorial Award from the American Spice Trade Association (ASTA), 2021.

Ms. Minnu Rose Joy, Ph.D scholar won the Best Poster Award for the poster entitled “Development of Herbal Infusion in Fruit Juice Using Guava Leaves: Nutritional and Antioxidant Properties” at the International Web Conference on Food and Nutrition Security for Sustainable Public Health on 22nd and 23rd October, 2020, organized by Nehru Arts and Science College, Coimbatore, TN.

Ms. Febina M., Ph.D scholar participated in the International Web Conference on Food and Nutrition Security for Sustainable Public Health on 22nd and 23rd October, 2020, organized by Nehru Arts and Science College, Coimbatore, TN.

V.S.Kunjumammed, Asst. Librarian attended a Webinar on 'LIBRARY PROFESSIONALS AS GAME CHANGERS' organized by DELNET on 27/2/2021.



The students of Semester II MSc Marine Biology, SOST, KUFOS attended an international conference on “RECENT BIOTECHNOLOGICAL INNOVATION IN AQUACULTURE (RBIA)” held at Bharathiar University Coimbatore. It was a two days conference conducted from 27 February 2020 to 28th February 2020, organized by Unit of Aquatic Biotechnology and Live Feed Culture, Department of Zoology, School of Life Sciences, Bharathiar University, Coimbatore & ICAR National Bureau of Fish Genetic Resources Lucknow.

The students of Semester II Msc Marine Biology, SOST, KUFOS attended a National seminar on “Coastal wetland in Kerala: significance, threats and conservation” held at Bishop Abraham Memorial college, Thuruthicaud, Pathanamthitta. It was a two days seminar conducted from 23rd January 2020 to 24th January 2020 and was funded by the Directorate of Environment and Climate Change (DOECC).

Dr. Preetham attended Parma Summer School 2020 "One Health" organized by the European Food Safety Authority (EFSA) on 9-10 June 2020. The One Health concept, which recognises that human, animal and environmental health are tightly connected, is a topic of global significance. This Summer School went with 3D virtual platform, the advantage being anyone can turn around 360° view, adjust the screen up & down and zoom the slide as we like to a point.”.

M. Sc. (Food Science and Technology) 2nd Semester students attended Skill Development and Career Orientation Programme on 16th January 2020. Mr. Saurab K Pandey ISAB New Delhi presented the talk. Dr. K. Gopakumar inaugurated programme and Mathew sir delivered vote of thanks. (Picture enclosed) As part of Industrial Visit, M. Sc. (Food Science and Technology) 2nd Semester students visited Nirapra Rice Processing Company at Kalady, Ernakulam. The students were accompanied by Dr. D. D. Nambudiri, Dr. Maya Raman and Ms. Febina M. (Picture enclosed). They are also visited the 22nd edition of India International Seafood Show (IIS), 2020 organized jointly by the Marine Products Export Development Authority (MPEDA) and the Seafood Exporters Association of India (SEAI) in Kochi, Kerala from 7th-9th February 2020.

Ms. Meenu and Ms. Sreelekshmy M. Sc. (Food Science and Technology) with mentor Dr. Maya Raman participated in State level evaluation of Young Innovation Programme.

Ms. Amala and Ms. Chitra M. Sc. (Food Science and Technology) completed certificate courses on consumer neuroscience and marketing, career edge conducted by TCS, and qualified the quiz on COVID-19 conducted by Ferook College.

Dr. D. D. Nambudiri, Dr. P. T. Mathew, and Dr. Maya Raman attended the AFST(I) Cochin Chapter-Online Executive Meeting conducted on May 14th using zoom.

Er. George Basim Asst. Professor of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology” from” conducted during April 13 th - April 25 th 2020

Er. Merin Skariah Research Scholar has attended the Webinar on "Ensuring Water Security for Future" on 08 May 2020 organized by KSCSTE, Trivandrum

Dr. Linu Salim, Asst Prof of School of Ocean Engineering & Underwater Technology attended International webinar “How molecular evolution influences structure of proteins organized by SAFI Institute of Advanced studies, Malappuram, Kerala on 30 th May 2020

Er. Nebu Pulickal Research Scholar attended webinar “Introduction to RTOS” organized by NIELIT, Calicut on 29th May 2020

Er. Basim Basheer Research Scholar attended webinar “Introduction to RTOS” organized by NIELIT, Calicut on 29th May 2020

Er. Nebu Pulickal Research Scholar attended webinar “Building IoT Solutions” organized by ER& DCI, Trivandrum on 5th June 2020

Er. Basim Basheer Research Scholar attended webinar “Building IoT Solutions” organized by ER& DCI, Trivandrum on 5th June 2020

Er. Merin Skariah, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology” from” conducted during April 13 th - April 25 th 2020

Er. Basim Basheer, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology” from” conducted during April 13 th - April 25 th 2020

Er. Nebu Pulickal, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology” from” conducted during April 13 th - April 25 th 2020

Er. Nebu Pulickal, Research scholar of School of Ocean Engineering & Underwater Technology attended the online course “Python for data science and machine learning boot camp” organized by udemy online platform conducted during April 30th to May 10th 2020

Er. Basim Basheer, Research scholar of School of Ocean Engineering & Underwater Technology attended the webinar on “ Ensuring Water security for future” on 08 May 2020 organized by KSCSTE, Trivandrum

Dr T K Srinivasa Gopal, Professor Chair, Centre of Excellence for Food Processing Technology (CEFPT) attended the webinar on the key principles of GMP, Sanitation and the COVID -19 equation on 22 May 2020. He has also attended the webinar comprehensive Nutrition to combat COVID-19 on 16 May 2020, the webinar on Future of Indian Mithai on 12 May 2020 and the webinar on opportunities in Fisheries post lockdown on 6 June 2020

Ammu Dinakaran Centre of Excellence for Food Processing Technology (CEFPT) attended WEBINAR on COVID-19 and the Food Industry: Key Principles of GMPs and Sanitation

## List of Programmes participated by Faculty Members and Students.....

Gopika P J Centre of Excellence for Food Processing Technology (CEFPT): Attended online webinar on “Role of Technologies and Automation in Food Processing and Preservation” and awarded with the participation certificate.

Ninisha Babu Centre of Excellence for Food Processing Technology (CEFPT) : Attended WEBINAR on COVID-19 and the Food Industry: Key Principles of GMPs and Sanitation

Mr. Nebu Pulickal Centre of Excellence for Food Processing Technology (CEFPT) Webinar on "What's Fair in Fair Machine Learning?" - 18th June 2021, conducted by Elder research and the Webinar on “Internet of Things(IoT) with MATLAB and Thing Speak” - 27 May 2021 conducted by NITTTR Chennai

Mr. Basim Basheer Centre of Excellence for Food Processing Technology (CEFPT) attended Webinar on "What's Fair in Fair Machine Learning?" - 18th June 2021, conducted by Elder research and the Webinar on “Internet of Things(IoT) with MATLAB and Thing Speak” - 27 May 2021 conducted by NITTTR Chennai

Ms. Merin (M.Sc-Marine Chemistry) completed the online course in “Nature-based Solutions for Disaster and Climate Resilience” organized by PEDRRUN environment prog on MAY 17 2021 She has also completed the NASA's Applied Remote Sensing Training Program on “Mapping and Monitoring Lakes and Reservoirs with Satellite Observations” on February 9th, 16th and 23rd February 2021

Dr P T Mathew, Head of the Department of Marine Chemistry was selected as a member of FSSAI Scientific Panel on Fish and Fish Products in January 2020 and attended scientific panel meeting of Fish and Fishery products of FSSAI held in Central Institute of Fisheries Technology, Cochin on 06th March 2020. This is the first meeting of the reconstituted scientific Panel.

Dr Sruthi Thalayappil R S, Assistant Professor (on contract) Department of Marine Chemistry participated in an online one day National Faculty Development Program on “Web-skills for online Classes” organised by Bishop Moore College, Mavelikkara on 30th May 2020. She has also worked as a resource person of “Steam Academy”, summer vacation E-camp for students organised by Kerala Sasthra Sahithya Parishad Palakkad Division during April –May 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person in a webinar panel discussion on Union Budget, jointly organised by the Department of Economics of KMM Govt Women's College, Kannur and Nirmalagiri College, Kuthuparamba on 9th February, 2021.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person in a Webinar on Union Budget organised by the Department of Economics, St Aloysius College, Thrissur on 5th February, 2021.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for a Webinar and delivered a talk on “Farmers story in India” jointly organised by the Department of Economics of, Poona College, Maharashtra & the S.H. College, Chalakkudy, Kerala on 23rd December, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for a Webinar and delivered a talk on “Farmers Bills-2020” organized by the Department of Economics, Nirmala College, Muvattupuzha, Kerala on 8th October, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person at the One Day National Webinar on “India and its Neighbourhood in Contemporary Times: Economic and Political Perspectives” jointly organized by the Department of Economics and Department of Political Science, Christ College (Autonomous), Irinjalakuda on 28th August, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for an International Webinar and delivered a talk on Impact of Covid 19 on Return Migration and the Foreign Remittance in India, organized by the Govt First Grade College, Vijayanagara, Bangalore on 15th June, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for a national Webinar and delivered a talk on Post Covid 19 World Order: Uncertainties and Expectations, organized by the Payyannur College, Payyannur on May 27th 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for an International Webinar and delivered a talk on Impact of Covid 19 on Return Migration and the Foreign Remittance in India, with Special Reference to Kerala, organized by the Little Flower College, Guruvayoor on 20th May, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Extension lecture on Kerala Budget 2021-22 at the Department of Economics, University of Calicut, Dr John Matthai Centre, Aranattukara, Thrissur on 19th January, 2021

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship has served as a Resource Person for a talk on “Career Options for Economics Graduates”, at the PG Department of Economics, St Aloysius College, Elthuruth, on 24th February, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered a lecture on Union Budget at the Department of Economics, Nirmala College, Muvattupuzha on 13th February, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered Extension lecture on Union Budget at the PG and Research Department of Commerce and Management Studies, of C. Achuthamenon Govt College, Thrissur on 10th February, 2020.

## Retirements.....

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Invited talk on Union Budget 2020-21 at the Department of Economics, St Mary's College, Thrissur on 5th February, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Extension lecture on Union Budget 2019-20 at the Department of Economics, Christ (Autonomous) College, Irinjalakuda, on 3rd February, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an antalk on "Prospects and Challenges of Blue Economy with a Special Reference to India", at MES Asmabi College, Kodungalur on 27/01/2020.

Extension lecture on the topic, "Dynamics of Indian Economy and the Growth Slowdown", at Sree Narayana College, Nattika on 17/01/2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Extension lecture on Union Budget 2019-20 at the Department of Economics, Dr B.R. Ambedkar Memorial Govt Arts and Science College, Balussery, Kozhikode on 1st August, 2019

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Extension lecture on Union Budget 2019-20 at the Department of Economics, University of Calicut, Dr John Matthai Centre, Aranattukara, Thrissur on 12th July, 2019

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship delivered an Extension lecture on Kerala Budget 2016-17 at the Department of Economics, University of Calicut, Dr John Matthai Centre, Aranattukara, Thrissur on 15th July, 2016.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship Chaired a session in an UGC sponsored National Seminar on "Turning India's Demographic Challenge to Youth

Dividend" by the Department of Economics, Little Flower College, Guruvayoor, Kerala on 18th August, 2015.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship Participated in the Five Day Faculty Development Programme in Behavioural Economics, organized by the Department of Economics, St Berchmans College, Changanassery, Kerala in collaboration with the Kerala State Higher Education Council on August 22 to 26, 2020.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship Participated in a Refresher course on Research Methodology for Faculty of Social Sciences organized by the Human Resource Development Centre (HRDC), University of Hyderabad during 20th July 2020 to 1st August, 2020 and obtained grade 'A'.

Dr.K.Rajesh, Asst Professor, Economics, School of Management and Entrepreneurship Participated in a Faculty Development Program conducted by the Entrepreneurship Development Institute of India at Kerala Forest Research Institute (KFRI) from 21.12.2019 to 03.01.2020.

On February 5, 2021 M tech Coastal & Harbour Engineering students attended Webinar on 'Shore protection by recent & Evolving Techniques- Assessment and Suddemination' (SPREAD 2021), organised by NIOT, Chennai and on March 23, 2021 they attended an E – Symposium- 'The Ocean, Our Climate and Weather', organised jointly by India Meteorological Department (IMD), Indian Meteorological Society (IMS) and Ocean Society of India(OSI) on the occasion of World Meteorological Day.



**Dr.M.S.Raju,**

Director of School of Management and Entrepreneurship retired from KUFOS service on 13 May 2020



**Dr. Alhi Korath,**

Asso Professor (Statistics), Faculty of Fisheries retired from KUFOS service on March 2021



**K.K Asokan,**

Permanant Labourer retired on March 31,2021

## Obituary.....



**T.Peter** (62), Senate Member of Kerala University of Fisheries and Ocean Studies and General Secretary of National Fishworker's Forum (NFF), T Peter passed away on October 08, 2020 in Thiruvananthapuram.



**K.K Ramesan,**

permanant labourer died on Jan 29 2021



**R.Ramesh**

(Hatchery Technician-on contract) Died on Dec 31,2020



