

UNIVERSITY

NEWSLETTER

TNJFU

Vol.01 No.05
September 2022

Editor-in-Chief

Dr. G. Sugumar, Ph.D.,
Vice-Chancellor

Editor

Dr. M. Rajakumar, Ph.D.,
Director of Extension Education

Committee Members

Dr. N.V. Sujathkumar
Professor and Head

Dr. N. Jayakumar
Associate Professor and Head

Dr. A. Gopalakannan
Programme Co-ordinator

Dr. C. Lloyd Chrispin
Assistant Professor

Dr. D. Kesavan
Assistant Professor and Head

*From the Desk of
Vice-Chancellor.....*



Dear Readers,

There is some good news for the fisheries sector. India exported seafood worth USD 4.09 billion during the first half of 2022-23, on the right course in achieving the target of Rs. one lakh crores in 2024-25. However, there are quite a few problems in the sector that need to be resolved if good news is to come often in Indian Fisheries.

Vannamei farming in India which contributed to over 8 lakh MT last year is becoming more and more difficult as selling prices lower and production costs increase. There is also stiff competition from countries that are able to supply at a lower cost in the international markets. This puts small and marginal farmers in a fix that many are hesitant to venture further. The shrimp farmers association from the delta region had expressed that it is not feasible to continue with vannamei farming if the trend persists. Do we have any alternative strategy to suggest to these farmers? Could we suggest taking up again with tiger shrimp? Now that we have the advantage of the availability of SPF seeds for tiger shrimp since 2021 and at least three commercial hatcheries are in operation supplying seeds.

The global production of tiger shrimp has seen a revival registering a figure of about 5,46,000 MT in 2021. However, with the expected recession in the major consuming countries such as the USA, the price of 20-30 count of tiger shrimp is on the fall causing concern to those who have shifted to the alternate species of shrimp with the hope of making it big. The market is not just unsteady for shrimp alone. The pasteurized crab meat export is facing trouble due to poor offtake by the importing countries and the small players have suspended operations while the larger ones operate with restrictions. The recent strictures by the NGT against shrimp farming operations along the coastal stretches also add to the existing woes.

This year's Nobel prize for Physics was awarded to the ground-breaking experiments using entangled quantum states where two particles behave like a single unit even upon separation. This reiterates that events occurring in one place are bound to affect the events elsewhere almost in every sector and more so in trade and the well-being of a nation's economy. It is not a spill over effect but a direct consequence of the events that cascade deep into every aspect of the sector affecting people, processes and progress involved. The effect is not just impacting the income of the primary producers, the fishermen or fish farmers but that of the processors, traders, input suppliers, exporters and those indirectly connected in fisheries. Well-defined policy intervention by the Government promoting shrimp farming could alone save the situation. All aspects of fisheries are aligned in a cyclical process and we better pay attention to ensuring everything is in harmony towards the holistic progress of the sector and not focusing on specific areas in isolation. We need to take the clue from this year's theme for the World Food Day, "Leave no one behind".

Published by

Director of Extension Education
Tamil Nadu Dr. J. Jayalalithaa
Fisheries University
Vettar River View Campus,
Nagapattinam - 611 002.
Phone : 04365 - 256434 / 436
Email : dee@tnfu.ac.in

Dr. G. Sugumar, Ph.D.,
Vice-Chancellor
www.tnfjfu.ac.in

VC EVENTS

PRADHAN MANTRI TB MUKT BHARAT ABHYAAN Scheme launched by the Hon'ble President of India:

The Vice-Chancellor participated through online in the programme of Pradhan Mantri TB Mukta Bharat Abhiyaan Scheme launched by the Hon'ble President of India on 09.09.2022.

7th National Tamil Conference:



The Hon'ble Vice-Chancellor participated in the 7th National Conference on Agricultural Scientific Tamil (Theme: Tamil Can Do – Agriculture/Veterinary/Fishery) organized by Agricultural Scientific Tamil Society, New Delhi, held at Madras Veterinary College, Chennai on 02.09.2022 and gave a special address. On this occasion, our Hon'ble Vice-Chancellor received "M.S.Swaminathan Medal of Appreciation" from the Hon'ble Minister of Fisheries and Fishermen Welfare of Tamil Nadu in recognition of his scientific contributions through Tamil.



ICAR-Peer Review Team Visit:

The ICAR-Peer Review Team comprising Dr.Dilip Kumar, Former Director and VC, CIFE, Mumbai as Chairman, Dr.G.Venkateshwarlu, Joint Director, ICAR-NAARM, Hyderabad as Member Secretary, Dr.A.G.Ponniah, Former Director, CIBA, Chennai, Dr.A.K.Upadhyay, Ex. Dean, GB Pant University of Agriculture and Technology, Pantnagar, and Dr.N.P.Sahu, Joint Director, CIFE, Mumbai visited the University on 05.09.22. The Vice-Chancellor welcomed the ICAR-PRT Team. Later, during the discussion held with the team members, the Registrar in-charge presented the report while Vice-Chancellor explained in detail the activities of the University. The ICAR-PRT visited the College of Fisheries Engineering, Nagapattinam and Dr.MGR Fisheries College and Research Institute, Thalainayeru on 05.09.22, Fisheries College and Research Institute, Thoothukudi on 06.09.22 and Dr.MGR Fisheries College and Research Institute, Ponneri on 07.09.22. The ICAR-PRT team held discussions with the students and staff in each college individually about the college activities. On 08.09.22 they held an exit meeting with the Vice-Chancellor along with Deans of all Colleges at the ARTP, Madhavaram, Chennai.



TNJFU, Nagapattinam



CoFE, Nagapattinam



Dr.MGR FCRI, Thalainayeru



FC&RI, Thoothukudi



Dr.MGR FCRI, Ponneri



Annual Performance Review of Staff:



The Annual Performance Review of the Staff for the year 2021-22 was conducted by the Hon'ble Vice-Chancellor on 09 & 10.09.2022, 15.09.2022, 16.09.2022 and 28.09.2022 at Fisheries College and Research Institute, Thoothukudi, College of Fish Nutrition and Food Technology, Madhavaram, Dr.MGR Fisheries College and Research Institute, Ponneri and Dr.MGR Fisheries College and Research Institute, Thalainayeru respectively.



Inauguration of awareness training programme:



A one-day awareness training programme on "Entrepreneurship in Marine Products" was conducted under EDII scheme on 26.09.2022. The inaugural ceremony was presided over by Dr.G.Sugumar,

Vice-Chancellor, TNJFU, Nagapattinam. During his talk, he briefed on the scope of entrepreneurship and the strategies and qualities of entrepreneurs to successfully strive in the field of marine processing.



University Officers Interview:

As the Chairman of the selection committee, the Hon'ble Vice-Chancellor conducted an interview for the selection of University Officers (Registrar, Dean, FC&RI, Thoothukudi and Dean, Dr.MGR FCRI, Ponneri) of TNJFU at the Conference Hall, ARTP, Madhavaram, Chennai on 14.09.2022.

Online meeting with the Government on "Higher Education in TNJFU":

The Hon'ble Vice-Chancellor participated in the online meeting conducted by the Principal Secretary to Government, Animal Husbandry, Dairying, Fisheries and Fishermen Welfare

Department with regard to the "Aim of Higher Education in TNJFU" on the forenoon of 15.09.2022.

Visit to Barur CeSA:

The Hon'ble Vice-Chancellor visited the Barur Centre for Sustainable Aquaculture, Barur on 17.09.2022 and reviewed the construction works under NADP Schemes.



Counselling for U.G. Admission under Special Categories:

In-person counselling for admission to the undergraduate degree courses for the year 2022-23 under special categories was conducted at the Auditorium, Tamil Nadu Dr. J.Jayalalitha Fisheries University, Nagapattinam on 19.09.2022. The Hon'ble Vice-Chancellor handed over the provisional admission letters to the selected candidates. Dr. N. Felix, Registrar, Dr. P. Jawahar, Chairman, UG Admission Committee, and Deans of the various colleges participated in this programme.



Welcome Meeting:



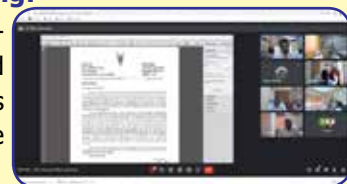
The Hon'ble Vice-Chancellor conducted a welcome meeting for the newly joined University Officers of TNJFU on the afternoon of 19.09.2022 at Headquarters, TNJFU, Nagapattinam.

Online Meeting for NAAC Accreditation:

The Hon'ble Vice-Chancellor participated in the online meeting conducted by the ICAR, New Delhi on 21.09.2022 to discuss the NAAC accreditation-related issues.

University Officers Meeting:

The Hon'ble Vice-Chancellor, TNJFU conducted the 57th University Officers meeting through virtual mode on 27.09.2022.



Inaugurated the Instructional Farm at Korukkai:

The Hon'ble Vice-Chancellor inaugurated the Freshwater Instructional Fish Farm at Korukkai on 28.09.2022 for Dr.MGR Fisheries College and Research Institute, Thalainayeru.



Met with the Principal Secretary to Government, AHDF&FW Department:

The Hon'ble Vice-Chancellor met with the Principal Secretary to Government, Animal Husbandry, Dairying, Fisheries and Fishermen Welfare Department, Secretariat, Chennai on 29.09.2022 and discussed the progress of the University and issues that require assistance from the Government.

Vice-Chancellors Meeting:

The Hon'ble Vice-Chancellor participated in the meeting of Vice-Chancellors of Agricultural Universities, organized by the ICAR, New Delhi at Kanha Shanti Vanam, Heartfulness Education, Hyderabad from 30.09.2022 to 02.10.2022.

College News

Fisheries College & Research Institute, Thoothukudi "Teachers Day" celebration:

The Students Association celebrated "Teachers Day" on 05.09.2022. Dr.R.Santhakumar, Dean i/c and President of Student's Association presided over the function and delivered the presidential address.

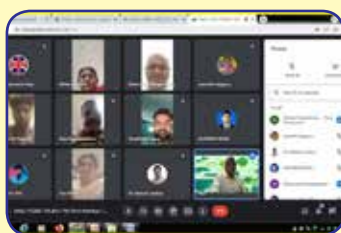


Training programme:

The Department of Aquaculture of this institute offered a one-day online training programme on Seaweed Farming on 29.09.2022. Trainees from Tamil Nadu and also from Maharashtra state participated. During this programme, the various aspects of seaweed farming such as the



importance of seaweeds, types of seaweeds, site selection,



methods of cultivation, harvesting & drying of seaweeds were taught to the trainees by online mode. Dr.S.Athithan, Professor and Head of this Department conducted the above training programme.

Dr. M.G.R Fisheries College & Research Institute, Thalainayeru

Tamil Speech Competition:

Students participated in the district-level Tamil speech competition on the occasion of the birth anniversary of Anna and Periyar organized by the Tamil department at the District Collectorate, Nagapattinam 15.09.2022 & 17.09.2022. Among the 14 colleges that participated, Miss. Oviya, 1st year B.F.Sc won the second prize.



World Wildlife Week, 2022:

Students participated in a district-level cultural competition conducted by the Forest Department, Nagapattinam on 25.09.2022 on the occasion of World Wildlife Week, 2022. A total of 25 schools and colleges around the Nagapattinam district participated in the event. Five students of the Thalainayeru campus have bagged prizes in Tamil speech, quiz and essay writing competitions.



College of Fisheries Engineering, Nagapattinam Shrimp farmers meet – , Nagapattinam District:

A guest lecture on "Shrimp culture current problems and future prospects" was delivered by Dr.T.Anand, Assistant Professor and Head, on 14.09.2022 at Velankanni wherein the shrimp farmers association presidents, shrimp farmers, feed suppliers and technical persons of more than 100 numbers participated.



He also delivered a lecture on "Recent technologies to overcome the current problems in shrimp farming" at the farmers' meet entitled "Recent Developments, Technologies and Challenges in shrimp Aquaculture" jointly organized by MPEDA and Dept. of Fisheries and Fishermen Welfare, Nagapattinam on 21st Sept' 2022 at Thirupooni, wherein more than 150 shrimp farmers from Nagapattinam District were participated



Training on Freshwater Fish Culture:

On 30.09.2022, a "Training on Fish Culture in Freshwater Ponds" in Muttam Village, Nagapattinam was held. This training was conducted under the UBA project (Project no.RP-03525G). Mr.P.Kumar, Sub-Inspector of Fisheries has delivered a Talk on Govt. schemes for fish culture. Dr.M.Ramar, Assistant Professor welcomed the gathering. Dr.D.Kesavan, the Principal Investigator of the scheme, demonstrated the use of pocket-size colorimeter for testing the water quality in ponds. Dr.T.Anand, Assistant Professor & Head, spoke on fish culture in freshwater ponds and business plans. Mr.Manoharan, Muttam Panchayat President advised the villages on utilization of the training. More than 50 villagers and entrepreneurs participated.

Engineering Exhibits:

Technologies developed by CoFE such as Solar powered aerator, Halochromic sensor, TNJFU Model Cage for Aquaculture, AquaGent-A virtual assistant (Chatbot), and posters of Semi-automatic dry fish cutter, Fish descaling machine, and Crab meat pasteurization in retort pouches were exhibited at Aquafarmers Assembly at Thanjavur Centre for Sustainable Aquaculture from 23-24 September 2022.



Institute of Fisheries Postgraduate Studies, Vaniyanchavadi Teachers' Day celebrated:



The Teachers' Day was celebrated at TNJFU, OMR Campus on 05.09.2022. The Chief Guest of the function was Dr. N. Parasuraman, Principal Archivist, MSSRF, Chennai. Dr.K. Kumanan, OIC, IFBT, addressed the

gathering and explained the significance of Teachers' Day. Dr. S.A. Shanmugam, the Dean (Basic Sciences) encouraged the students to respect their teachers' advice to be worthy citizens of India. Mr. M. Harinivas, Literary Secretary, proposed a vote of thanks. Dr. E. Suresh, Vice-President, arranged for the programme.

Students' Association 2021-22 Inaugurated:

The Students' Association of Institute of Fisheries Biotechnology and Fisheries Business School for the year 2021-22 was inaugurated at TNJFU OMR Campus on 15.09.2022. Dr. G. Sugumar, Vice Chancellor, TNJFU was invited as Chief Guest and addressed the gathering. In his address, he motivated

the students to soar above the crowd like the eagle by citing the famous anecdote "Don't Be a Duck, Be an Eagle – The Story of The Power of Choice". Dr. S.A. Shanmugam, Dean and President of the Students' Association delivered the presidential address and congratulated the office bearers for taking up the responsibilities. Dr. K. Kumanan, OIC, IFBT delivered a felicitation address. The Vice President, Dr. E. Suresh, welcomed the gathering and administered oath to the office bearers. General Secretary, Mr. V.V. Jothiswaran, delivered a vote of thanks.



Sports Day celebrations:

TNJFU-Institute of Fisheries Biotechnology (IFBT), TNJFU-Fisheries Business School (FBS) and TNJFU-Institute of Fisheries Post Graduate Studies (IFPGS) jointly conducted the Annual Sports Meet 2022 on 27.09.2022. Annual Sport Report was provided by Mr. Phibi Philip Naduvathu and Dr. K. Kumanan, officer in-charge of TNJFU-IFBT delivered the felicitation address. Dr. R. Ramakrishnan, Registrar, TNPESU the chief guest delivered a special address and distributed certificates and medals to the winners. Dr. S. A. Shanmugam delivered the presidential address and Mr. R. Thamaraiselvan, Games Secretary, Students' Association proposed the vote of thanks. B.Tech. (Biotechnology) 2018-19 batch along with PGs & PhDs became the champions and the runners were 2019-20 batch of B.Tech. (Biotechnology) and B.B.A. (Fisheries Enterprise Management). Mr. Allan Amalan Jeffirin of B.Tech. (Biotechnology) 2020-21 batch and Ms. S. Atchaya of B.Tech. (Biotechnology) 2018-19 batch was the 'individual champion' in the category of men and women respectively.



Hostel Day Celebrations:

The TNJFU- Institute of Fisheries Biotechnology (IFBT), TNJFU - Fisheries Business School (FBS) and Institute of Fisheries Post Graduate Studies (IFPGS) jointly celebrated the Hostel Day 2022 on 29.09.2022 at the OMR Campus Hostel. Students' Association, OMR Campus organized the function with the support and guidance from Tmt. A. JemilaThangarani, Assistant Professor (Warden), Dr. M. Divya, Assistant Professor



(C) (Deputy Warden, Girls Hostel), Mr. Phibi Philip Naduvathu, Assistant Professor (C) (Deputy Warden, Boys hostel) and Dr. E. Suresh, Vice President, Students Association. Dr. K. Kumanan, Officer i/c, TNJFU-

IFBT inaugurated the celebrations. Mr. N. Baskaran, Regional Manager of Shen Long Biotech Private Limited was the Chief Guest and presented the medals and prizes to the winners of various events. 'Marlins' house was the overall champions of Hostel Day 2022 celebrations. Dr. P. Sriram, Professor Head, Department of Pharmacology and Toxicology delivered the felicitation address.

Directorates

Directorate of Extension Education Uzhavar Mugam 2022:

A training programme "Uzhavar Mugam 2022" on Organic farming and Traditional Rice Varieties Cultivation was jointly organized with VAANGHAI trust at KVK, Nagapattinam on 06.09.2022. The program was aimed to create awareness on the cultivation and conservation of traditional rice varieties. Dr.A.Gopalakannan, Programme Coordinator, KVK welcomed the participants. Dr.V.Wilfred Manuel, Professor Rtd., TNAU as Chief guest delivered a special address. He narrated the history of present varieties released from TNAU and the importance of Aathurkitchali samba. Dr.R.Pushba, Asst. Professor (Plant breeding and genetics), TRRI, Aduthurai delivered a lecture on 'Kavuni varieties cultivation'. Dr. P. Balaguru, Associate Prof. Botany, Jamal Mohammed College, Trichy delivered a special lecture on GI tagging of Traditional Rice varieties.



Agro-ecological pest management was handled by Mr. L. Narayanmoorthy, ADA, Thiruvannamalai followed by Mr. P.Sethuraman, Progressive farmer, Villupuram shared his experience on Traps for pest management. Subject Matter Specialist, Dr.V.Kannan (Agronomy) handled the technical session on organic cultivation of Rice. Mr. K.Mohanraj Yadhav VAANGHAI trust delivered a vote of thanks and distributed Aathurkitchali samba 2 kgs each to the farmers to encourage the cultivation of Traditional Rice varieties.

Poshan Ma Nutri Garden and Tree Plantation Drive:

ICAR- Krishi Vigyan Kendra, Nagapattinam organized an awareness programme on Poshan Ma – Nutri Garden and Tree Plantation Drive on 17.09.2022 at KVK campus.

Dr.A.Gopalakannan, the Programme Coordinator welcomed. Dr.J.JosphinAmutha, Joint Director of Health and Family Welfare, Nagapattinam gave a special address. Mrs.Selvamani, Block Development Officer, Integrated Child Development Scheme, Nagapattinam delivered the key note address. Dr.A.Mathivanan, SMS (Home Science) explained the role of minor millets in human health. Mr.K.Ragu, SMS (Horticulture) explained about the Nutri vegetables and setting up of Nutri-garden. Mr.M.Pommannan, Field Officer, IFFCO explained about the Nano urea technology. About 120 Farm women, Anganwadi staff attended and benefited. Tree saplings and vegetable seeds pocket were distributed to all the participants.

Training on Integrated Farming System in Wetland and Bio-floc Aquaculture:

Tamil Nadu Irrigation Management Training Institute, Trichy and KVK, Nagapattinam jointly organized "Technical Training on Integrated Farming system in Wetland and Bio-Floc Method of Fish Farming on 20.09.2022 at KVK, Nagapattinam.



Tamil Nadu Irrigation Management Training Institute, Mrs. S. Thilakavathi Associate Director presided and spoke about the objectives of the programme. Dr. A. Gopalakannan, Programme Coordinator, KVK delivered

the keynote address. Tamil Nadu Irrigation Management Training Institute Associate Professor and Deputy Director of Agriculture Mrs. C. Rajeshwari delivered the inaugural address and Irrigation management techniques. Mr.E.Hino Fernando, SMS(Fisheries Extension) trained the farmers on re-circulation of waste and aquaponics technology in integrated farming. Mr. K. Ragu, SMS(Horticulture) imparted training on vegetable cultivation in integrated farming. Demonstrations were conducted on animal husbandry, fish farming, goat rearing, aquaponics, beekeeping, and vermicomposting. Earlier Mrs. Ka.Kalachelvi, Associate Researcher, IMTI, gave a welcome address..

Directorate of Sustainable Aquaculture AQUA FARMERS ASSEMBLY 2022:

The Aqua Farmers Assembly 2022 was conducted by the TNJFU-Directorate of Sustainable Aquaculture at Thanjavur Centre for Sustainable Aquaculture on 23-24 Sep 2022. Dr.M.Loganathan, Director i/c National Institute of Food Technology, Entrepreneurship and Management, Thanjavur participated in the inaugural ceremony as Chief Guest. Dr.G.Sugumar, Vice Chancellor, TNJFU presided over the event. Dr.J.StephenSampathkumar, Director, DSA coordinated the



event. Twenty technical speakers from TNJFU, ICAR Institutes, Industry, NGOs and entrepreneurs delivered the technical content for the participants. Twelve exhibition stalls were exhibited and nearly 1250 participants from different districts visited the stalls in two days.



The following were released during the event.

1. The technology of TNJFU cage model
2. The monograph of Loach culture technology
3. The Aqua Service App
4. Manuals on Freshwater Fish Culture, Tilapia Culture and Ornamental Fish Culture
5. A souvenir of AFA 2022

Directorate of Incubation and Vocational Training in Fisheries

Off-campus training:

Organized an awareness cum training programme on "**Care and maintenance of Marine Engine**" for the fishermen of Alanthalai on 17.09.2022. In this connection a one-day off-campus training programme entitled "Care and Maintenance of Marine Engines" was jointly organized by DIVF, Ramanathapuram and Reliance foundation, Madurai zone. About 33 fishermen attended the training programme. As per the guidance of the Director, Capt.S.Viswanathan, Er.M.Sivasudalaimani, Automobile Engineer and Capt.A.Sakayarex, Nautical Officer gave detailed information on the following topics.

1. Care and maintenance of Marine Engines
2. Safety for fishermen at Sea

Beach cleaning programme:



The International Beach cleanup day 2022 was celebrated on 17.08.2022. In this connection a "Beach Cleaning programme" at Ariyaman Beach, Ramanathapuram was jointly organized with Marine Police, Ramanathapuram. The Teaching staff, non-teaching staff and students were actively participated in the programme.

Common Events

The Social Justice Day -Pledge, 2022 was observed in the constituent units of TNJFU and staff and students have taken the pledge on 16.09.2022



New University Officers Appointed:



Dr. N. Felix

Dr. N. Felix, took charge as Registrar, TNJFU, Nagapattinam on 15.09.2022. He was the Director of Incubation and Vocational Training in Aquaculture (DIVA), Muttukadu before he assumes office.



Dr. B. Ahilan

Dr. B. Ahilan, Former Dean of Dr.M.G.R Fisheries College and Research Institute, Ponneri took charge as Dean of the Fisheries College and Research Institute, Thoothukudi on 15.09.2022



Dr. R. JeyaShakila

Dr. R. JeyaShakila, Professor and Head, Department of Fish Quality Assurance and Management at Fisheries College and Research Institute, Thoothukudi took charge as Dean, Dr.M.G.R Fisheries College and Research Institute, Ponneri on 16.09.2022

From

Director of Extension Education
Tamil Nadu Dr. J. Jayalalithaa
Fisheries University
Vettar River View Campus,
Nagapattinam - 611 002.

To

Research Publications

1. Kamalij, A., Antony, C., **Ahilan, B., Uma, A., & Prabu, E.** (2022). Dietary Protein Replacement of Fish Meal with Black Soldier Fly Larvae Meal: Effects on Growth, Whole-Body Composition, Digestive Enzyme Activity, Muscle-Growth-Related Gene Expression and Haemato-Biochemical Responses of Juvenile Goldfish, *Carassius auratus*. Turkish Journal of Fisheries and Aquatic Sciences, 23(2). **(NAAS- 7.26)** DOI: 10.4194/TRJFAS21837
2. **Petchimuthu, M.**, Rosalind George, M., Rijjohn, K & Santhanakumar, V. (2022). Pathogenicity potential of antimicrobial resistant *Photobacterium damsela subsp. damsela* isolated from maricultured and wild caught fishes southeast coast of India. Aquaculture research, 53, 4505-4520. **[NAAS rating – 8.08]**.
3. Ayesha, J., **Pradeep, R., & Tanveer, M.*** (2022). Development of Artificial Intelligence-based chatbot for smart aquafarm practices. Expert Systems, 1–18. <https://doi.org/10.1111/exsy.13123> **(IF 2.812)**.

Patent/Design Applications Filed

1. **Mohammad Tanveer,** Pradeep, R., Ayesha, Jasmin S, Narmatha Rani N, Thirumavalavan D,

Sivakami Aishwarya K, Mohammad Althaf, Nandhini S, Pravarthika R, Siva Pandi S, Sivasanthosh S, Akshaya K, Akilan R, Pescetaria - Fish Vending Machine, Design application no.370866-001.

2. **Kesavan Devarayan, Anand Theivasigamani, Monikandon Sukumaran, Ramar Marimuthu,** Capacitive Deionization of Water, Design Application, Appl. No.370485-001, 2022.
3. **Dr.M.Ramar, Dr.D.Kesavan, Dr.T.Anand, Er.S.Monikandon,** B. Sanjay, M. Gowsick Kumar, P. Suwathi, Piezoelectric Tiles, Design Application, Appl.No. 370291-001, 2022.
4. **Ramar Marimuthu, Kesavan Devarayan, Anand Theivasigamani, Monikandon Sukumaran,** Piezoelectric Shoe, Appl.No. 370787-001, 2022.
5. **Monikandon Sukumaran, Kesavan Devarayan, Anand Theivasigamani, Ramar Marimuthu,** Aquatic Animal, Habituation tank, Appl.No. 370865-001, 2022.
6. **Monikandon Sukumaran, Kesavan Devarayan, Anand Theivasigamani, Ramar Marimuthu,** Anbarasan Rajmanickam, Balaji Munusamy, Aquatic Animal Harvester, Appl.No. 370867-001, 2022.

"சோதனை கடந்து சுதந்திரம் அடைந்தோம்
சாதனை புரிந்து சரித்திரம் படைப்போம்."