

Profile

Name : Dr. Biju Sam Kamalam, J.

Designation : Scientist (Agricultural Research Service)

Qualifications : B.F.Sc. (FC & RI, Thoothukudi, TANUVAS)
M.F.Sc. (ICAR-CIFE, Mumbai)
Ph.D. (INRA-UPPA, France)

Email Address : bs.kamalam@icar.gov.in; bijunut@hotmail.com



Professional experience : 9 years

Area of Research Expertise : Fish Nutrition and Physiology
(Development of sustainable feeds for rainbow trout; nutritional interventions for stress mitigation in aquaculture; diet and genotype-husbandry-environment interactions; climate resilient aquaculture strategies - RAS; gut microbiome dynamics; and environmental physiology of coldwater fishes)

Google scholar link :
https://scholar.google.co.in/citations?user=b5mvpb_QAAAAJ&hl=en

ORCID ID : 0000-0003-1944-0244

Awards/ Recognitions :

1. 'Dr. S. Ayyappan gold medal' for distinguished research contribution on 'Gut microbiome of Himalayan snow trout', awarded by Inland Fisheries Society of India, Barrackpore (2020).
2. 'Indo-Australian Career Boosting Gold Fellowship' funded by Department of Biotechnology (Government of India) for pursuing post-doctoral research at Nutrition and Seafood laboratory, Deakin University, Australia (2018-2019).
3. 'Best Trainee Scientist Award' for outstanding overall performance in the 99th Foundation Course for Agricultural Research Service organised at the ICAR-National Academy of Agricultural Research Management, Hyderabad (2014).

4. 'Netaji Subhash Chandra Bose International Fellowship' funded by Indian Council of Agricultural Research for pursuing Ph.D. at Nutrition Metabolism Aquaculture unit, INRA, France (2010-2013).
5. 'CIFE Institutional Fellowship' funded by Indian Council of Agricultural Research for pursuing Ph.D. in ICAR-CIFE, Mumbai (2009)
6. 'Dr. C.V. Kulkarni gold medal' and 'Dr. Hiralal Choudhary gold medal' for securing 1st rank at university level and divisional level in post-graduation (M.F.Sc.), ICAR-Central Institute of Fisheries Education (2009).
7. 'CIFE Institutional Fellowship' funded by Indian Council of Agricultural Research for pursuing post-graduation in ICAR-CIFE, Mumbai (2007-2009; ICAR JRF examination All India Rank 3).
8. 'Dr. K.C. Naik gold Medal' for the 'Best Fisheries Graduate of India 2007' for securing 1st rank in the All-India level competitive tests conducted by Professional Fisheries Graduate Forum, Mumbai (2007).
9. 'Mrs. T. Gopalan Nair gold medal', 'TANUVAS Alumni Association gold medal', 'Prof. Rangaswamy's prize' and 'Parasakthi Vaithilingam excellence award' as the best outgoing student in under-graduation (B.F.Sc.), Tamil Nadu Veterinary and Animal Sciences University, Chennai (2007).
10. 'TANUVAS Merit scholarship' for pursuing under-graduation in Fisheries College and Research Institute, Thoothukudi (2003-2007).

Publications :

Research papers - 23

Reviews - 2

Books - Nil

Book chapters - 4

NCBI Microbiome profiles - 23

NCBI Nucleotide sequences - 58

Training manuals - 2

Popular articles - 7

Bulletin - 1

Others (ICAR-DCFR Annual reports) - 3

Projects

Institutional:

1. Development of an effective package of feeds and feeding strategies for augmenting rainbow trout production (Principal Investigator; 2021-2024)
2. Development and validation of an efficient broodstock feed for rainbow trout (Co-Investigator; 2020-2023)
3. Engineering and validation of an affordable mini-RAS for small scale fish production (Co-Investigator; 2020-2023)
4. Nutritional intervention for improving reproductive competence and larval quality traits of golden mahseer in captivity (Co-Investigator; 2020-2023)
5. Development and validation of novel feed formulations for rainbow trout based on commercial-scale industrial by-products (Principal Investigator; 2018-2021)
6. Central and peripheral regulation of feed ingestion and nutrient uptake in snow trout, *Schizothorax richardsonii* (Principal Investigator; 2015-2019)
7. Myogenic regulation and protein turnover of muscle growth in snow trout, *Schizothorax richardsonii* (Co-Investigator; 2015-2019)

External:

1. National Innovations on Climate Resilient Agriculture (NICRA): Development of climate resilient farming strategies and risk assessment models for coldwater fisheries (Co-Investigator; 2017-2025; ICAR)
2. Triploid rainbow trout (*Oncorhynchus mykiss*) production for aquaculture enhancement and ecological risk management (Co-Investigator; 2017-2020; DBT)
3. Evaluation of biosynthetic resolvins and protectins as nutraceuticals in sea bass, *Lates calcarifer* (Principal Investigator; 2018-2019; DBT)
4. National Mission for Sustaining the Himalayan Ecosystems (NMSHE): Sustainable development of fisheries in cold desert regions of India (Co-Investigator; 2015-2019; DST)
5. Fish feed outreach: ICAR network project (Co-Investigator; 2014-2018; ICAR)

Public-Private Partnership:

1. Development and validation of complete range of rainbow trout feeds (Principal Investigator; 2020-2023; Growel Feeds Pvt. Ltd., Andhra Pradesh)

2. Evaluation of single cell protein by-product of methane conversion as an alternative protein source in rainbow trout grow-out feeds (Principal Investigator; 2018-2021; String Bio Pvt. Ltd., Karnataka)

3. Evaluation of rice distillers dried grains as an alternative protein source in rainbow trout grow-out feeds (Principal Investigator; 2018-2021; S.P.Y Agro Industries Ltd., Andhra Pradesh)

Important 10 Publications (Recent) :

1. Rajesh, M., Kamalam, B. S.*, Sharma, P., Verma, V. C., Pandey, A., Dubey, M. K., Ciji, A., Akhtar, M. S., Pandey, N., Sarma, D. & Kaushik, S. J. (2022). Evaluation of a novel methanotroph bacteria meal grown on natural gas as fish meal substitute in rainbow trout, *Oncorhynchus mykiss*. Aquaculture Research, 53(6), 2159-2174.

2. Gladju, J., Kamalam, B. S.*, & Kanagaraj, A. (2022). Applications of data mining and machine learning framework in aquaculture and fisheries: A review. Smart Agricultural Technology, 100061.

3. Pandey, A., Rajesh, M., Baral, P., Sarma, D., Tripathi, P. H., Akhtar, M. S., Ciji, A., Dubey, M. K., Pande, V., Sharma, P. & Kamalam, B. S.* (2021). Concurrent changes in thermal tolerance thresholds and cellular heat stress response reveals novel molecular signatures and markers of high temperature acclimation in rainbow trout. Journal of Thermal Biology, 102, 103124.

4. Ciji, A., Akhtar, M. S., Tripathi, P. H., Pandey, A., Rajesh, M., & Kamalam, B. S. (2021). Dietary soy lecithin augments antioxidative defense and thermal tolerance but fails to modulate non-specific immune genes in endangered golden mahseer (*Tor putitora*) fry. Fish & Shellfish Immunology, 109, 34-40.

5. Akhtar, M. S., Rajesh, M., Kamalam, B. S., & Ciji, A. (2020). Effect of photoperiod and temperature on indicators of immunity and wellbeing of endangered golden mahseer (*Tor putitora*) broodstock. Journal of Thermal Biology, 93, 102694.

6. Kamalam, B. S.*, Mahija, J., Baral, P., Pandey, A., Akhtar, M. S., Ciji, A., & Rajesh, M. (2019). Temperature and oxygen related ecophysiological traits of snow trout (*Schizothorax richardsonii*) are sensitive to seasonal changes in a Himalayan

stream environment. *Journal of Thermal Biology*, 83, 22-29.

7. Rajesh, M., Kamalam, B. S., Ciji, A., Akhtar, M. S., Pandey, N., Gupta, S., Sarma, D., Sahu, N. P. & Singh, A. K. (2019). Molecular characterisation and transcriptional regulation of muscle growth regulatory factors myogenin and myogenic factor 6 in the Trans-Himalayan cyprinid fish *Schizothorax richardsonii*. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 231, 188-200.
8. Akhtar, M. S., Rajesh, M., Ciji, A., Sharma, P., Kamalam, B. S., Patiyl, R. S., Singh, A. K. & Sarma, D. (2018). Photo-thermal manipulations induce captive maturation and spawning in endangered golden mahseer (*Tor putitora*): A silver-lining in the strangled conservation efforts of decades. *Aquaculture*, 497, 336-347.
9. Kamalam, B. S.*, Patiyl, R. S., Rajesh, M., Mir, J. I., & Singh, A. K. (2017). Prolonged transport of rainbow trout fingerlings in plastic bags: optimization of hauling conditions based on survival and water chemistry. *Aquaculture*, 480, 103-107.
10. Kamalam, B. S., Medale, F., & Panserat, S. (2017). Utilisation of dietary carbohydrates in farmed fishes: new insights on influencing factors, biological limitations and future strategies. *Aquaculture*, 467, 3-27.

Other information / responsibilities :

1. Chairman and In-charge, Feed Mill committee of ICAR-DCFR (2018 - till date)
2. Nodal Officer, ICAR-DCFR technical support to Kannan Devan Hill Plantations Company Pvt. Ltd. rainbow trout hatchery operation at Rajamallay, Munnar, Kerala (2018 - till date)
3. Co-Nodal Officer, Tribal Sub-Plan committee of ICAR-DCFR (2016 - till date)
4. Member, Institute Technology Management Unit and committee of ICAR-DCFR (2019 - till date)
5. Member, Coldwater Recirculating Aquaculture System (RAS) committee of ICAR-DCFR (2019 - till date)
6. Member, Annual Report and Newsletter editorial committee of ICAR-DCFR (2015 to 2017).