ANNUAL REPORT 2023-2024

CENTRE FOR AQUACULTURE RESEARCH AND EXTENSION (CARE)

1. The Centre for Aquaculture Research and Extension (CARE) is engaged in diverse research areas of Aquaculture, Including Aquatic Biodiversity, Aquatic Toxicology, Fish Nutrition and Feed Formulation, Fish Pathology, Genetics, Water Quality Assessment, Aquatic Biotechnology, Fish Histology, and Recent Trends in Probiotics. CARE's research in 2023-2024 focused on developing probiotics for fish gut and water health, discovering new drugs from bacterial secondary metabolites, and improving health and growth rates in aquaculture through disease treatment and management. Additional focus is given to the culture and breeding of ornamental fish. Studies are underway to develop new probiotic formulations that promote gut health and improve growth rates in both large-scale and small-scale aqua farms. CARE's research also aims to assess water quality parameters, apply biotechnological interventions to enhance overall aquaculture production, and address critical needs in Indian Aquaculture. In the academic year 2023–24, six students are pursuing their research under the guidance of Dr. J. Ronald, Dr. P. Raja and Dr. R. Azhaguraj.
2. Anni Jain Askwith Mary, a research scholar of Dr. R. Azhagu Raj, submitted her Ph.D. dissertation to Manonmaniam Sundaranar University, Tirunelveli. Works carried out in the CARE laboratory have been published as five papers in Web of Science Journals and four papers in Indexed Journals during the academic year 2023–24. Research scholars presented nine papers at a National-Level Conference.
3. Ramkumar participated in two International Conferences and presented two papers. The first one is titled "In vitro and Molecular Docking Studies on Bioactive Compounds from a *Brevibacillus sp".* The National Conference on "Biodiversity Restoration: Current Trends and Emerging Opportunities" was presented in a Conference organized by the Department of Zoology at St. Xavier's College (Autonomous), Palayamkottai, on 21.02.2024. The second

paper was presented in the National Conference on “Health and Hygiene” (NSHH’ 24), organized by the Department of Zoology, Sarah Tucker College (Autonomous), Tirunelveli on 16.02.2024, titled “Evaluation of Antibacterial Activity Against Prawn Pathogen” and “Broad Spectrum Antibacterial Activity of *Lepidagathispungens* Against Fish Pathogenic Bacteria.”

4. Balagangatharan presented two papers titled “Phytochemical Screening and Antibacterial Potential of Root Extract of *Moringa oliefera*” at the National Conference on “Health and Hygiene” (NSHH’ 24), organized by the Department of Zoology, Sarah Tucker College (Autonomous), Tirunelveli, on 16.02.2024. “Exploring the Antimicrobial and Azo Dye Degrading Potential of a Marine *Bacillus subtilis* Strain” was presented in the National Conference on “Biodiversity Restoration: Current Trends and Emerging Opportunities" organized by the Department of Zoology, St. Xavier's College (Autonomous), Palayamkottai on 21.02.2024. A paper was published in the Web of Science, Isolation and Characterization of Antagonistic Bacteria from the Gut of *Lampitomauritii* (Kinberg, 1866). *Indian Journal of Science and Technology*, *17*(2), 194–203.
5. Karthick presented a paper titled “Analyzing Bird Diversity and Distribution Using the Fuzzy Matrix Technique" at the National Conference on “Biodiversity Restoration: Current Trends and Emerging Opportunities," organized by the Department of Zoology at St. Xavier's College (Autonomous), Palayamkottai, on 21.02.2024.
6. Sarath Kumar presented a paper titled “Antimicrobial and GC-MS Analysis of Bioactive Components on the Leaf Extracts of *Artocarpus hirsutus Lam”* at the National Conference on “Health and Hygiene” (NSHH’ 24), organized by the Department of Zoology, Sarah Tucker College (Autonomous), Tirunelveli, on 16.02.2024.
7. Ms. S. Renuka, a research scholar of Dr. J. Ronald, has registered patents for her innovative ideas on the instruments Insect Collecting Kit (Design No. 388720-001) and Plant Microbes Detection Device (Design No. 377681-001).