

# DR. BINESH CHEMMANCHERRY PUTHIYAVEETIL

*Ph.D. Marine Biology · Fish Virologist & Aquatic Disease Specialist · Diagnostic Kit Inventor*

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## PROFESSIONAL PROFILE

Marine biologist and virologist with a Ph.D. and 15+ years of experience in aquatic disease surveillance, molecular fish diagnostics, and laboratory management. Inventor of a patented PCR diagnostic kit for betanodavirus that reduces testing costs by 30% and protects an estimated USD 2 million/year in aquaculture production. Author of 19 peer-reviewed papers (citations: 204; h-index: 7) in fish virology, parasitology, and diagnostic assay development; experienced in establishing multi-disciplinary laboratories from scratch and supervising teams up to 90 staff.

## CORE COMPETENCIES

- ▶ Fish Disease Diagnosis & Surveillance
- ▶ Diagnostic Assay & Commercial Kit Development
- ▶ Histopathology, FISH & Electron Microscopy
- ▶ Aquaculture Health Management (BMP)
- ▶ Cloning, Protein Expression & Purification
- ▶ PCR / RT-PCR / Nested PCR / LAMP / eDNA
- ▶ Laboratory Establishment & Management
- ▶ Team Supervision & QA/QC Compliance
- ▶ Bioinformatics & Phylogenetic Analysis
- ▶ Field Sampling & Biosafety Protocols

## PROFESSIONAL EXPERIENCE

**Assistant Professor – Zoology** | **Gurudev Arts and Science College, Payyanur** | *Jun 2025 – Present*

- Teaching undergraduate Zoology (marine biology, animal physiology, environmental biology); continuing applied fish health research alongside teaching duties.

**Senior Scientific Officer** | **Spice Healthcare** | *Apr 2021 – Mar 2022*

- Supervised 90 laboratory and field staff during COVID-19 high-volume diagnostic operations; sustained 250,000+ tests/year at 98% accuracy with 20% TAT reduction via LIMS workflow optimisation.
- Implemented QA/QC, infection control, and biomedical waste management protocols to regulatory standards.

**Research Associate** | **Kerala University of Fisheries & Ocean Studies (KUFOS)** | *Nov 2018 – Nov 2020*

- Established three laboratories from scratch: PCR (fish pathology), wet lab (fish biology), and hydrobiology lab (water quality, pollution, climate monitoring).
- Identified 40 fish and crustacean species in Kavvayi backwaters; conducted BMP training programmes for aquaculture stakeholders.

**Senior Research Fellow** | **Central Marine Fisheries Research Institute (CMFRI)** | *Nov 2013 – Oct 2018*

- Executed National Surveillance Programme for Aquatic Animal Diseases across marine ecosystems using systematic field sampling and advanced molecular diagnostics.
- Built a fully equipped multi-disciplinary disease research laboratory (wet lab, histopathology, FISH, PCR, ultracentrifuge, SEM) from the ground up.
- Identified two new *Ceratomyxa* n.sp. and *Tenuiproboscis keralensis* n.sp.; conducted eDNA-based Perkinsus distribution surveys; assessed mussel-farm over-productivity and recommended evidence-based mitigation.

**Senior Research Fellow** | **Central Institute of Brackishwater Aquaculture (CIBA)** | *Oct 2007 – Mar 2011*

- Developed and patented the  $\beta$ -Nova Kit — a nested RT-PCR betanodavirus diagnostic assay (Patent 347/DEL/2011) reducing testing cost by 30%, protecting >USD 2 million/year in aquaculture production.
- Characterized 19 RGNNV isolates from 19 fish species including 3 new susceptible hosts; demonstrated that subclinical infection escalates to fatal VNN (97% mortality) under thermal and crowding stress.

**Earlier Roles (2007–2013):** Research Fellow – CUSAT (2007); Research Assistant – Rajiv Gandhi Centre for Aquaculture (2007); Lecturer – Sacred Heart College, Thevara (2011–2013; postgraduate Aquaculture & Fish Processing); Guest Faculty – Govt. Arts & Science College, Karindalam (2024–2025).

## EDUCATION

**Ph.D. Marine Biology** — *University of Madras, India, 2015–2021*

Thesis: Betanodavirus in fishes — molecular surveillance, phylogenetics and diagnostic assay development. Delineated 6 phylogenetic clades; identified new host species; demonstrated temperature as a mortality trigger.

**M.Sc. Marine Biology** — *Cochin University of Science & Technology, 2004–2006*

**B.Sc. Zoology** — *Kannur University, 2001–2004*

## PATENT · PUBLICATIONS · AWARDS

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**Patent** 347/DEL/2011 (Govt. of India) — Nested RT-PCR diagnostic assay for betanodavirus; commercialized as the  $\beta$ -Nova Kit (30% cost reduction; >USD 2M/year in protected aquaculture value).

**Publications** 19 peer-reviewed papers · 204 citations · h-index 8 · Highest IF: 13.5 · 3 technical booklets · 21 conference presentations

**Selected (fish disease & diagnostics):**

**2020** Molecular surveillance of VNN in farmed fish — case investigation and diagnostic evaluation. [jabf.in/articles/Vol8/1-2/20-Binesh\\_etal.pdf](http://jabf.in/articles/Vol8/1-2/20-Binesh_etal.pdf)

**2014** VNN escalation with thermal stress — experimental model in zebrafish. [doi.org/10.1111/jfd.12080](https://doi.org/10.1111/jfd.12080)

**2013** VNN in zebrafish and goldfish — first report; VNN in clownfish — first report. [doi.org/10.3354/dao02605](https://doi.org/10.3354/dao02605)

**2013** Genomic classification and genetic characterisation of betanodavirus (Indian isolates). [doi.org/10.1007/s00705-012-1549-7](https://doi.org/10.1007/s00705-012-1549-7)

**Awards** Best Presentation — DALAF-2010 (ICAR-CIFE, Kolkata) · Best Presentation  $\times 2$  themes — BRAQCON 2019 · Session Co-Chair — ETIA-2013 · Invited peer reviewer, international journals

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*English PTE Academic: Overall 73 (Reading 78, Writing 77, Speaking 67, Listening 65) | Malayalam (Native) |*

*Full publications: [orcid.org/0000-0002-0974-8432](https://orcid.org/0000-0002-0974-8432) | [Open to relocation](#)*