Dr. Bindu R. Pillai

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Educational Qualifications	
1998	**Ph.D. (Marine Sciences),** *Cochin University of Science &Technology, Cochin, Kerala*
1989	**M.Sc. (Mariculture),** *Cochin University of Science &Technology, Cochin, Kerala*
1986	**B.Sc (Zoology),** *Gandhiji University, Kottayam, Kerala*
Academic awards	• ICAR Junior Research Fellowship for M.Sc. degree program at CMFRI, Kochi (1986-1988) • ICAR Senior Research Fellowship for Ph.D. degree program at CMFRI, Kochi (1989-1992)

Areas of specialization	• Genetic improvement of freshwater prawn *Macrobrachium rosenbergii* • Breeding, hatchery technology and grow-out culture of *M. rosenbergii* • Physiology of osmoregulation in penaeid prawns. • Cryopreservation of embryos and larval stages of *M. rosenbergii*.
Current areas of research	• Genetic improvement of giant freshwater prawn *Macrobrachium rosenbergii* through selective breeding. • Development of Freshwater Integrated Multi-Trophic Aquaculture Systems • Aquaponics
Research guidance	• **M.F.Sc. – 2** • **Ph.D - 2**
Highlights of Research Contribution	• Initiation and implementation of a genetic selection programme based on family selection to develop a fast growing strain of freshwater prawn *Macrobrachium rosenbergii*. • Involved in establishing a captive broodstock bank for the production of good quality seed of freshwater prawn *Macrobrachium rosenbergii* in a 2 ha area in the Instructional fish farm of College of Fisheries, Nellore. • Developed and standardized protocols for reliable production of full sib families of freshwater prawn *M. rosenbergii* for selective breeding programme. • Standardization of an individual (visible implant alphanumeric tag) as well as batch tagging technique (visible implant elastomer tag) in juvenile freshwater prawn *M. rosenbergii.* • Developed and standardized a package of practices for the development of captive broodstock of freshwater prawn *Macrobrachium rosenbergii.* • Development of an enzymatic digestion method for the individual separation of viable embryos of *Macrobrachium rosenbergii* for cryopreservation studies. • Development and standardization of a semi closed, two-phase hatchery technology for sustainable seed production of *Macrobrachium rosenbergii.*

	• Development of a package of practices for grow out production of freshwater prawn *M. rosenbergii* • Developed and standardized an indoor high-density rearing system for *M. rosenbergii* post larvae in a commercial level hatchery. • Developed an enzymatic digestion method for the individual separation of viable embryos of *Macrobrachium rosenbergii* for cryopreservation studies. • Developed an outdoor nursery rearing system of post larvae of *Macrobrachium rosenbergii* in earthen ponds.
Publications	• Peer reviewed Research Papers – 46 • Edited publications: 11 • Book Chapters/Technical Papers/ Popular Articles: 11 • Leaflets - 15
Recent Publications	1. **Bindu R. Pillai,** Lalrinsanga, P.L., Ponzoni, R.W., Khaw, H.L., Mahapatra, K.D., Mohanty, S., Patra, G., Naik, N., Pradhan, H. and P. Jayasankar. **2017**. Phenotypic and Genetic Parameters for Body Traits in the Giant Freshwater Prawn (*Macrobrachium rosenbergii*) in India. ***Aquaculture Research 48, 5741-5750***. 2. Jesna, P.K., **Pillai, B.R**., N. Naik and H. Pradhan., **2018**. Biofilm formed on different natural substrates enhances the growth and survival in *Macrobrachium rosenbergii* (De Man 1879) juveniles. ***Indian Journal of Fisheries,65(1):55-58***. 3. Ferosekhan, S., Sahoo, S.K., Giri, S.S., Das, B.K., Pillai, B.R and Das, P. C. **2019.** Captive broodstock development, induced breeding and seed production of bagrid catfish, Mahanadi rita, *Rita chrysea* (Day, 1877), ***Aquaculture, 503, 339-346.*** ***4.*** Haldar, C., Das. S. P., Pillai, B.R., Pavan-Kumar A., P. Gireesh-Babu, Das, P., Chaudhari, A., **2019**. Single-nucleotide polymorphisms linked to body weight revealed in growth selected *Macrobrachium rosenbergii*, ***Aquaculture International, https://doi.org/10.1007/s10499-018-03343*** ***5.*** Sahoo, S.K., Ferosekhana, S, Giri, S.S., Radhakrishnan, K., Panda, D, SriHari, M., Pillai, B.R. **2019**. Length-weight relationship and growth performance of different life stages of hatchery produced magur, *Clarias magur* (Hamilton, 1822). ***Aquaculture Research DOI: 10.1111/are.14018*** ***6.*** Dash, L., Kumar, R., Mohanta, K.N., Mohanty, U.L., Pillai, B.R. and Sundaray, J.K. **2019.** Effect of feeding frequency on growth, feed utilisation and cannibalism in climbing perch *Anabas testudineus* (Bloch 1792) fry. ***Indian Journal of Fisheries, 66 (1):106-111.***

	7. P K Sahoo., Pattanayak, S., Paul A, Sahoo, M. K., Rajesh Kumar, P, Panda, D and Pillai, B. R., **2018.** First record of *Metanophrys sinensis* (Protozoa: Ciliophora: Scuticociliatida) from India causing large scale mortality in a new host *Macrobrachium rosenbergii* larvae. ***Journal of Fish diseases, DOI: 10.1111/jfd.12809.*** **8.** Adhikari , S, Chaudhury, A.K, Barlaya, G.,Rathod, R., Mandal, R.N, Ikmail, S., Saha G.S, De H.K, Sivaraman I, Mahapatra AS, Sarkar S, Routray P, Pillai, B.R.,Sundaray, J.K. **2018**. Adaptation and Mitigation Strategies of Climate Change Impact in Freshwater Aquaculture in some states of India. ***Journal of FisheriesSciences.com* 12(1): 16-21.** 9. **Bindu R. Pillai**, Mahapatra, K.D., Ponzoni, R.W., Sahoo, L., Lalrinsanga, P.L., Mekkawy,W., Khaw, H.L., Nguyen, N.H., Mohanty, S., Sahu, S., Patra, G., **2015.** Survival, sex ratio, male morphotype distribution, female reproductive status and tag losses in crosses among three populations of freshwater prawn *Macrobrachium rosenbergii* (de Man) in India. ***Aquaculture Research 46, 2644-2655*** 10. **Bindu R. Pillai**, K. D. Mahapatra, R. W. Ponzoni, L. Sahoo, P.L. Lalrinsanga, N. H. Nguyen, S. Mohanty , S. Sahu , Vijaykumar, S. Sahu , Khaw, H. L. Patra, G, Patnaik, S, Rath, S. C. **2011**. Genetic evaluation of a complete diallel cross involving three populations of freshwater prawn (*Macrobrachium rosenbergii*) from different geographical regionsof India. ***Aquaculture 319 (2011) 347–354*** 11. Padmanava Mohanty, L.Sahoo, **B. R Pillai,** P. Jayasankar and P.Das, **2016.** Genetic divergence in Indian populations of *M. rosenbergii* using microsatellite markers. ***Aquaculture Research 47, 472-481*** . 12. Anantharaja, K., Mohapatra, B.C., Pillai, B.R., Rajesh Kumar, Devaraj C. and Majhi, D **2017**. Growth and survival of climbing perch, *Anabas testudineus* in Nutrient Film Technique (NFT) Aquaponics System. ***International Journal of Fisheries and Aquatic Studies; 5(4):*** 24-29. ***13.*** Patra, G., Mohanty, J., Garnayak, S. K., Sahoo P. K., and Pillai, B.R. **2015**. Genetic variations among families of selectively bred *Macrobrachium rosenbergii (de man)* by RAPD-PCR analysis ***Journal of Aquaculture 23, 17-36.*** 14. Swagathika Mohanty, Pillai, B. R, Rangacharylu, P.V. **2013**.Effect of different levels of dietary lipids on reproductive performance of captive broodstock of Macrobrachium rosenbergii. ***Journal of Aquaculture, 21, 21-26.*** ***15.*** PL Lalrinsanga, **B.R Pillai,** G. Patra, S. Mohanty, N.K Naik, R.R Das, S Sahu, **2014**. Yield characteristics and morphometric relationships of giant freshwater prawn, *Macrobrachium rosenbergii* (de Man, 1879). ***Aquaculture International, 22, 1053-1066***

	16. Mohanty, J., Sahoo, P. K., **Pillai, B. R**., Mohanty, S., Garnayak, S. K., S. Kumar. **2015**. Purification and characterization of a β–glucan binding protein from the haemolymph of freshwater prawn *Macrobrachium rosenbergii* ***Aquaculture Research, 46, 95-104.*** 17. P. L. Lalrinsanga, **B. R. Pillai**, S. Mohanty, G. Patra,and S.Sahu. **2012**, Length–weight relationship and condition factor of giant freshwater prawn, *Macrobrachium rosenbergii* based on developmental stages, culture stages and sex. ***Turkish Journal of Fisheries and Aquatic Sciences 12, 917-924.*** 18. Sahoo, P. K., Shekhar, M. S., Das A., Kumar D. M., **Pillai**, **B.R.** and A. S. Sahul Hameed. **2012.** Immunomodulatory effect of recombinant RNA-dependent RNA polymerase protein of *Macrobrachium rosenbergii* nodavirus in giant freshwater prawn *Macrobrachium rosenbergii* ***Aquaculture Research 43,1096-1106.*** 19. B.B. Sahu, **B.R. Pillai**, P.L. Lalrinsanga, R.P. Samal, P.K. Meher, D.R. Kanaujia, A.K. Sahu and P. Jayasankar, **2012.** A Comparison of Commercial Characteristics and Yield Partitioning Between *Macrobrachium rosenbergii* (De Man 1879) and *Macrobrachium malcolmsonii* (Milne Edward 1894), ***American-Eurasian Journal of Scientific Research 7 (2): 82-85.*** ***20.*** Bhuyan, S. K., Jena, J. K., **Pillai, B. R**., P. Kumar and S. K. Chakraborty, **2012**. Studies on the growth of Otolithes ruber, and *Pennahia macroophthalmus* from Paradeep coast, India. ***Indian J. Fish, 59*** **(2): 89-93.** ***21.*** Das A., Kumar D. M., **Pillai**, **B.R.,** Shekhar, M. S. Routray, P., and Sahoo, P. K., **2011.** Immunomodulatory effect of recombinant capsid and b2 proteins of *Macrobrachium rosenbergii* nodavirus in freshwater prawn *Macrobrachium rosenbergii (de Man).* ***Journal of Aquaculture, 19, 9-24.*** **22.** Rath, S. C., **Pillai, B. R**., Mohanty, S. N., Sarkar, S. **2011**. Growth and survival of *Macrobrachium rosenbergii* (de Man) post larvae fed with iso-proteic diets incorporated with fishmeal and its substitution exclusively by plant protein. ***Indian Journal of Animal Sciences*** **81 (12)**: ***1272-1275.***
Book Chapters/ Technical Papers/ Popular Articles	1. **Bindu R. Pillai,** Lalrinsanga, P.L., Jesna, P.K., D. Panda and B. Mishra, **2018**. Breeding and Culture of giant freshwater prawn (scampi) *Macrobrachium rosenbergii*. In: Ravichandran, K (Ed.). Package of practices for breeding and culture of commercially important freshwater fish species. NFDB, Hyderabad, 55-77. 2. **Bindu R. Pillai** and J.K. Sundaray**, 2017.** Freshwater Aquaculture Research and Recent Developments. In: Souvenir; Aqua Aquaria India 2017; 14-16 May 2017, pp37-46' Mangalore, Karnataka. MPEDA 3. **B. R. Pillai** and D. Panda **2019.** Integration of Freshwater and Brackish Water Farming Systems and Research on Resilient Aquaculture Species. In: Souvenir 'International Conference on

Brackishwater Aquaculture (BRAQCON 2019)', Chennai, Tamil Nadu, India, 23-25 January 2019.

4. **Bindu R Pillai**, **2019.** Farming of Freshwater Prawn *Macrobrachium rosenbergii* in India: Status and Scope. In: Souvenir, 31st All India Congress of Zoology & National Seminar on "Climate-Smart Aquaculture and Fisheries", College of Fisheries, CAU, Lembucherra,15-16 January, 2019.
5. **Bindu R. Pillai, 2011.** Freshwater prawn breeding and culture. ***In: Handbook of Fisheries and Aquaculture***, ICAR, New Delhi, 413-438.
6. **Bindu R. Pillai,** L. Sahoo, P.L. Lalrinsanga, S. Mohanty and S. Sahu, **2011**, Development of captive broodstock of giant river prawn *Macrobrachium rosenbergii*, ***Aquaculture Asia, 16 (2): 17-20.***
7. **Bindu R. Pillai**. **2008**. Freshwater Prawn Aquaculture: Status and Scope. In: ***Applied Bioinformatics, Statistics and Economics in Fisheries Research.*** Pp.131-140. (Eds. A. K. Roy and N. Sarangi). New India Publishing Agency, New Delhi.
8. **Bindu R Pillai**, S. C. Rath, Sovan Sahu and Sarangi, N. **2007.** Grow-out technology of giant freshwater prawn. ***Indian Farming,* 3-5.**
9. **Bindu R. Pillai**, Sahu, S and Mohanty, S. **2007** Growth, survival, yields and weight class distribution of monosex populations of giant freshwater prawn *Macrobrachium rosenbergii* (De Man). In: Nair C. M., Nambudiri, D. D., Susheela, J., Sankaran, T. M., Jayachandran, K. V. and Salin, K. R. (Eds.). ***Proceedings of the International Symposium on Freshwater prawns,* 20-23** August 2003, Kochi, India, p.410-416.
10. **Rangacharyulu, P. V., S. S. Giri and** Bindu R Pillai **and Sovan Sahu.** 2007. Growth and nutrient digestibilities in *Macrobrachium rosenbergii* juveniles fed Aqua-Pro (IHF-500) supplemented diet. In: Nair C. M., Nambudiri, D. D., Susheela, J., Sankaran, T. M., Jayachandran, K. V. and Salin, K. R. (Eds.). ***Proceedings of the International Symposium on Freshwater prawns,*** 20-23 August 2003, Kochi, India, p. 571-574.
11. **Bindu R. Pillai** and P.S.B.R. James, **1993**. Effect of physical stress on *Penaeus indicus*. ***C.M.F.R.I. Special publication no. 54***, 1-8.