AP PO 90

Physicochemical parameters and microbial loads of marine cage farm at Polem, Goa

MAMATHA H. HAZARI*, J. L. RATHOD
Department of Post Graduate Studies and Research in Marine Biology, Karnataka University P.G. Centre, Kodibag, Karwar, Karnataka, India; *hazari_mamatha@yahoo.com*

Present study was undertaken at the marine cage farm of Polem village, Goa. Water and sediment samples were analyzed for evaluating the physicochemical characteristics and total cultivable heterotrophic bacteria. No significant variation was observed in the physicochemical parameters of the water except for inorganic phosphate ($p<0.05$). Total cultivable bacterial count ranged from 2.06 to 19.27 x 10^4 cfu/g and 1.14 to 8.41 x 10^4 cfu/g, while total presumptive vibrio count ranged from 0.15 to 1.57 x 10^4 cfu/g and 0.09 to 0.78 x 10^{-4} cfu/g. Study revealed that, all the parameters studied were at optimum level and cage farming with limited number of cages does not have major impacts on the water and sediment quality.

AH PO 43

DNA barcoding: validating morphological identification of Argulus species infesting rohu

S. MOHANTY*, M. MOHANTY, K. SARMA, A. DEY, T. KUMAR, P. DAS

ICAR Research Complex for eastern region, Patna, ICAR Parisar, B.V. College, Patna, Bihar, India; **msnatashree@yahoo.com*

Parasitism in pisciculture has been identified as an important threat to aqua industry causing disastrous loss in semi intensive systems. Freshwater ecto-parasitic crustacean was isolated from naturally infested rohu raised in culture pond. Out of 278 fish specimens screened, 167 fish (60.07%) had Argulus infestation. Based on the morphological identification key under light and scanning microscope, retracted fish lice appeared similar as *Argulus foliaceus*. This outcome was further validated by DNA barcoding using mitochondrial COI gene for species level confirmation. BLAST analysis and phylogenetic clustering were done for accurate parasite identification. The pair wise distance value using kimura-2 parameter showed a species level variation of 0.001 (1%) with that of *Argulus foliaceus* and 0.083 and 0.052 (i.e. more than 2%) with that of *Argulus indicus* and *Argulus japonicus* respectively. Furthermore, result of phylogenetic analysis using Neighbour-Joining (NJ) tree and Maximum-Likelihood (ML) with kimura-2 parameter is also in agreement with pair-wise distance values. The identified species cluster with *A. foliaceus* and formed a separate cluster from other two Argulus species. Hence the result from morphological, microscopic identification and DNA barcoding together supports the species to be *Argulus foliaceus*. DNA barcoding in the present study proves to be an efficient molecular tool for a better monitoring and management of fisheries.

FG PO 18

Good aquacultural practices of small scale shrimp farmers in Kerala: An assessment

ANCY SEBASTIAN[1]*, M.M PRASAD[2]

[1]Visakhapatnam Research Center of ICAR- Central Institute of Fisheries Technology, Visakhapatanam, Andhra Pradesh, India; [2]ICAR-Central Institute of Fisheries Technology, Kochi, Kerala, India; **ancbabu@yahoo.co.in*

The shrimp farming industry has been contributing substantially to the shrimp

exports from India over the last few decades. This paper presents the knowledge, attitude and the extent of implementation of Good Aquacultural Practices (GAP) by the shrimp farmers in Kerala, through a combination of questionnaire and on site observation of the practices. The study indicated that the farmers possess a good level of knowledge on practices with respect to pond preparation, farm management, post harvest management etc. The selected farms were further evaluated for the access, on farm testing facilities, worker's health and hygiene, pest control measures, effluent management, community relations, preparedness to traceability, training, hazard analysis and documentation etc. and were found adopting best management techniques. The major obstacles hindering them from implementing GAP was lack of training, cost concerns and lack of external compulsion. Hence, this study highlights the need for imparting training to the shrimp farmers in documentation as this is essential for reviewing the adequacy of and adherence to GAP. Even when the concern about more than 90% of the shrimp farmers in India who belong to small scale and marginal category exists, the move towards shrimp aquaculture certification is expected rather to encourage and motivate them also while strengthening and increasing the competitiveness of the compliance farms.

FG PO 19

Fisheries research in India (1987-2016): an analysis of research productivity

S.K. MOHANTY*, G.S. SAHA

ICAR-Central Institute of Freshwater Aquaculture, Kausalyaganga, Bhubaneswar, Odisha, India;
**mohanty.sisir@gmail.com*

Scientific performance is essentially a multidimensional concept which cannot be measured by a single indicator. Publication has been one of the most important indicators for measuring the research performance. The study analyses the fisheries research output in India during 1987-2016 on different parameters including growth, global publication share, most productive authors and institutions, and pattern of research communication in most productive journals. For this purpose, the online version of the Scopus database was used. There were 20570 papers published during the period 1987-2016.They were downloaded and analysed. The research productivity has recorded 13 times increase during 1987-2016. From 150 papers in 1987, it has gone up to 1965 in 2016. The growth of literature in this field was very low during the year 1987-2001. But since 2002, an exponential growth was observed indicating sustained impetus received for research during 2002-2016. Ninety percent of the papers were research articles whereas reviews, conference papers, book chapters, notes, letters etc. constituted the rest. ICAR-CIFE published highest number of papers followed by ICAR-CMFRI and ICAR-CIFA. Besides fisheries research institutions, the universities *viz*., Annamalai University, Banaras Hindu University and University of Calcutta are the leading publishers of research papers. Journal of Environmental Biology emerged as the most referred journal by the researchers with 447 papers followed by Ecology Environment and Conservation with 330 papers, Indian Journal of Fisheries with 325 papers and Pollution Research with 324 papers. The highly cited publications have also been identified. Papers from institutes of national importance including ICAR are increasingly appearing in journals with high impact factors whereas papers from universities and colleges etc. are appearing largely in Indian journals.