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Marine ichtyoplankton off Southern Sri Lanka: species, abundance and possibility of using for mariculture

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Ichtyoplankton surveys are useful to determine the occurrence and abundance of economically important marine fish larvae. As majority of fish larvae fail to reach maturity due to natural mortality, use of small samples of larvae from natural populations for rearing in captivity will help to promote mariculture, which is a sustainable solution for declining marine fisheries. The ichtyoplankton survey was conducted for three months in coastal and off shore waters (<1.0 and >9.0 km from shoreline respectively) off Mirissa, Southern Sri Lanka using a plankton net, to become familiar with the methodology to be adopted for collection of ichthyoplankton. Temperature, pH and salinity of water in the sampling sites were measured to identify their importance for ichthyoplankton distribution. Larvae were successfully preserved in 70 % ethanol and stained with Borax Carmine for identification of species through microscopic examinations. For taxonomic identification published literature and rearing of larvae fed with *Artemia*nauplii, were adopted. Sampling was limited due to availability of boat and rough sea conditions. Numbers of larvae of *Monodactylus argenteus, Teraponjarbua* and of families Gerreidae and Carangidae were >6100 L^{-1}, while of *Monocentris japonica, Lutjanus malabaricus,* several genera (*Cheilopogon, Upeneus*) and families Blennidae, Clupeidae, Mullidae, Pomacentridae and Tetradontidae and unidentified species were <6 100 L^{-1}. Larvae of *Teraponjarbua* and family Tetradontidae reared in captivity, developed in to juveniles, which were not much different in their morphometry, morphology and pigmentation from the juveniles captured from the wild. Mean temperature, salinity and pH of the offshore and coastal waters were 26.6 ± 0.59 (22) and 28.8 ± 0.63 (22) ^{0}C, 37 ± 0.73 (22) and 35 ± 0.59 (22) ppm and 7.96 ± 0.66 (22) and 8.01 ± 0.03 (22) respectively and they were significantly different ($P < 0.05$) in the two sampling areas with no differences among samples taken within each area. This survey revealed the possibility of sampling live ichthyoplankton and successfully rearing them in captivity. The need for regular sampling over longer periods is required for collection of larger numbers of larvae of different fish species for a better understanding of their diversity, distribution, and seasonality and for development of rearing techniques to be adopted for mariculture of economically important species.

Keywords: Ichtyoplanton, sampling, rearing, effect of physicochemical parameters

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