Title of the Project: '**Biology and Distribution of Atyid Shrimps in the Kuttanad Region of Pamba River**'

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Kuttanad known for its vast paddy fields and river systems has the unique distinction of being one of the few regions in the world where paddy farming is practiced below the sea level. It is spread across three districts of Kerala namely, Alappuzha, Pathanamthitta and Kottayam and drained by Meenachil, Pamba, Manimala and Achancovil Rivers. The extensive river systems and adjoining paddy fields provide immense opportunities for aquaculture.

Atyid shrimps are one of the abundant macro-invertebrates in the natural inland water bodies. Globally, 43 genera have been reported under the family Atyidae. So far only one genus has been reported from India which is *Caridina* H.M. Edwards, 1837.

Atid shrimps are important for the aquatic ecosystem in a number of ways.

- They are omnivorous and serve as a food source for predators.
- They are used as live food in aquaculture.
- Candidate species in aquarium
- Serve as bioindicators
- Crustacean material for experimental biology

Only one species of species of *Caridina* has been reported from Pamba River that is *Caridina natarajani* Tiwari and Pillai, 1968. It is characterized by:

Moderately long rostrum, slightly convex usually extending up to the middle of 3rd antennular segment; in males, it is shorter hardly reaching the middle of 2nd antennular segment. Rostral formula: 11-23/1-7 (3-5 post-orbital).

Telson with 3-5 pairs of dorsal spines, posterior end convex, without median projection, bearing 6-8 distal spines, those at the centre are longer and strongly plumose.

Carpus of 1st pereiopod shorter with a slight anterior excavation. Dactylus of 3rd pereiopod ending in a sharp spine, with 8-10 accessory spines on its posterior margin; ischium and merus bear 0-1 and 2-3 spines respectively on the posterior margin.

Dactylus of 5th pereiopod ending in a sharp claw, its posterior margin is armed with 45-75 comb-like spinules; ischium and merus bear 0 and 1-3 spines respectively on the posterior margin. Endopod of the male 1st pleopod without appendix interna. Uropodal diaeresis with 12-14 spines. Eggs large, green in colour measuring 0.42-0.58 x 0.65-0.76 mm. Fecundity 50-90 eggs.

Studies made on the population structure of *Caridina natarajani* revealed that

1. Population density was high during the months of September, October and November.
2. Ovigerous females were abundant in the months of July, August and September that coincides with south west monsoon, but the population density declined in the monsoon season due to flood related distribution of the species.
3. Juveniles dominated the collections of October to February.

The number of eggs carried by females of *C. natarajani* (14.5-19.5 mm Total length) ranged from 50-90. The logarithmic values of fecundity have been found to be positively correlated to the logarithmic values of length and weight of the animal. But the increase in fecundity with regard to length and weight is not consistent because individuals of the same length and weight class carried varying number of eggs and some of the larger females carried fewer eggs than the smaller females. In ovigerous females long setae appear on both the inner and outer margins of basis, the setae of the inner margin carry the eggs while those of the outer margin close the brood pouch and support the egg mass. The breeding dress was shed about 1-2 days after the hatching of the eggs. In *Caridina natarajani* the incubation period varies between 14 and 15 days. The larvae exhibit abbreviated development with three zoeal stages and one post larval stage. Positive relationship was observed between length and weight in males and non ovigerous females. Carapace length, cephalothoracic length, rostrum length and telson length also showed positive relationship with total length of the animal.

Atyid shrimps are characterized by hardiness, short generation time and high survival rates. This property can be utilized for commercially culturing *Caridina*, which can be used as live feed in aquaculture.