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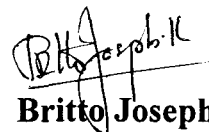
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ABSTRACT

The cladocerans, commonly known as “water fleas” constitute an important component among the microcrustacean assemblages of all aquatic habitats; they may be planktonic, phytophilic or benthic. Their body is divided into head, thorax, abdomen and postabdomen; the size often ranges from 0.2 to 3.0 mm. The group Cladocera is classified into 4 orders viz. Anomopoda, Ctenopoda, Onychopoda and Haplopoda under Class Branchiopoda of Superclass Crustacea. Cladocerans occupy an important position in the freshwater food web and are important as food of many aquatic organisms. Although, India is potentially rich in cladoceran fauna, information on biology of Indian Cladocera is meager. The early researchers of our country mainly concentrated on systematic studies.

The specimens for the present study were collected from the different freshwater habitats of Thrissur district, Kerala. In the present study 12 species belonging to 5 families viz. Family Sididae, Daphniidae, Moinidae, Macrothricidae and Chydoridae have been selected for biological studies. The life cycle studies were made by rearing them individually in the laboratory providing similar culture conditions.

The present study has given emphasis on biology of cladocerans with reference to their life cycle, pre-adult and adult instars, moulting, morphometric dimensions during growth, reproduction, ephippium production, embryonic stages and life span. These features are described and illustrated. The samples collected from the field were dominated by

parthenogenetic females while the ehippial females and males were scarcely represented. The males and ehippial females were developed under laboratory conditions.

Out of the 12 species studied, the biology of 9 species: *Diaphanosoma sarsi*, *Pseudosida bidentata*, *Latonopsis australis*, *Moina brachiata*, *Moinodaphnia macleayi*, *Ilyocryptus spinifer*, *Macrothrix triserialis*, *Alona pulchella* and *Oxyurella singalensis* is studied for the first time in our country.

The biology of *Ceriodaphnia cornuta*, *Scapholeberis kingi* and *Simocephalus serrulatus* has also been investigated to compare with earlier reports and the general trends in life cycle are discussed in detail. The studies made on the life cycle of males of 4 cladoceran species: *Pseudosida bidentata*, *Moinodaphnia macleayi*, *Macrothrix triserialis*, and *Oxyurella singalensis* is a new contribution to the cladoceran biology.

The rapid development, early maturity, constant number of pre-adult instars, longer primiparous instar duration, high fecundity, parthenogenetic reproduction, moulting, general pattern of embryonic development and laying of resting eggs enclosed in the ehippium are some of the important life history traits adopted by cladocerans. The important life history characters were studied and statistically analyzed. The pattern of ornamentation of ehippium is found to be diagnostic at species level.

This is a modest report on the biology of cladocerans from the freshwaters of Kerala. It is hoped that this thesis and interpretations made herein would pave way for a better understanding of the life of cladocerans and will be helpful for the future investigators in this field.