STUDIES ON DIVERSITY AND DYNAMICS OF CLADOCERA IN A SUB TROPICAL SUNGAL POND, AKHNOOR (J AND K)

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INTRODUCTION
Cladocera, commonly known as water fleas, are planktonic crustaceans ranging in size from 0.2 to 5.00 mm and belong to the order cladocera of Sub class Branchiopoda of class Crustacea. These micro crustaceans occupy the second trophic level i.e. primary consumer level in an aquatic ecosystem. Besides this they also serve as important diet for fishes and hence have a vital role in the stability and integrity aquatic ecosystems. (Dodson and Hanazato, 1995). Globally about 4000 species of cladocera have been described. (Covich and Tharp, 1991). About 187 species of freshwater cladocera have been reported from India (Raghunathan and Kumar, 2003). Studies on these branchiopod crustacean in India have been contributed by Biswas (1964), Nayar (1971), Battish and Kumar (1982), Michael and Sharma (1988), Raghunathan (1989), Venkataraman and Krishnamoorthy (1998). In this context, studies from aquatic habitats of Kashmir have been made by workers like Balkhi and Yousuf (1992), Yousuf and Qadri (1983), Siraj et al. (2006, 2007) and Pandit et al. (2007). Studies on cladocerans from Jammu region of the state of Jammu and Kashmir have been contributed from India (Raghunathan and Kumar, 2003). The present study was undertaken to analyze the diversity and dynamics of freshwater cladoceran from a pond in Jammu region of the state of Jammu and Kashmir.

MATERIALS AND METHODS
With an aim to investigate the diversity and dynamics of the Cladocerans, a sub tropical pond at Sungal on Akhnoor-Sohal road in Akhnoor (located between Latitude 32.87ºN and Longitude 74.73ºE at an altitude of 301 m (988ft) from mean sea level in the foothills of Himalayas on the bank of River Chenab) was selected. Regular monthly visits were made to the pond for physico-chemical analysis of pond water and collection of zooplankton samples from November 2009 to October 2010. A total 8 (eight) species of cladocera belonging to 6 (six) genera and 4 (four) families were recorded which enjoyed well marked seasonal dynamics in the population during the present investigation.

RESULTS AND DISCUSSION
The present investigation revealed the presence of 8 Species of Cladocera belonging to 7 Genera and 4 Families. The Cladocera families having their representatives include Daphniidae, Moinidae, Chydoridae and Macrothricidae. The cladoceran species recorded during present study include Daphnia pulex, Daphnia similis, Moina brachiata, Macrothrix laticornis, Chydorus sphaericus, Alona rectangula, Ceriodaphnia reticulata and Simocephalus vetulus.

Daphniidae is the dominant family with 4 species followed by Chydoridae with 2 species while Moinidae and Macrothricidae have 1 species each, thus contributing 50%, 25%, 12.5% and 12.5% respectively to the Cladoceran fauna of the water body under investigation (Fig. 1).

Well marked seasonal variations were recorded in the Cladoceran population during the present study (Table 1). The population of cladoceran passed through two minimas
and two maxima during the present study period from November 2009 to October 2010. The Cladoceran population recorded a distinct spring maxima both qualitatively and quantitatively from Feb, 2010 to April, 2010. The spring maximum is attributed to accumulation of organic matter in the pond due to rise of primary productivity on account of temperature rise in the post winter period. Another peak, in population was recorded during the monsoon (July-September), a mild monsoon maxima which can be attributed to the influx of nutrients and organic matter from surrounding catchments area which enhances the productivity of the aquatic ecosystem. These findings are in concordance with Sehgal (1980), Dalpatia (1998), Sharma (2001) and Sharma et al. (2005); Sharma and Chanderkiran (2011).

The population of cladocera also passed through two minimas, a summer minima (May 2010 – July 2010) and a winter minima (November, 2009-January, 2010) which can be attributed to unfavourable temperature and other physico-chemical parameters during this period (Table 2) and limited availability of food. However Ceriodaphnia reticulata was nearly having a perennial existence throughout the study period and dominated Cladoceran population quantitatively during the study period and may be attributed to the wider tolerance of this species to the various physico-chemical parameters. (Siraj et al., 2007; Chanderkiran, 2008).

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REFERENCES


