Zooplankton of Munzur River (Tunceli, Turkey)

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Abstract: The zooplankton fauna of Munzur river was studied between June 2009 to May 2010. A total of 11 taxa were recorded. Out of these 8 species belonging to Rotifera 2 to Cladocera 1 to Copepoda were recorded. The most species of zooplankton were found in June and July (11 species) while the minimum species were found in January (1 specie). Most of the zooplankton species were belonged to Rotifer. Also, it was found that the most common family in the study area was belonged to Brachionidae (4 species). All zooplankton species identified are considered as new record for Munzur river.

Key words: Zooplankton rotifera, copepoda, cladocera, Munzur river, water quality, pollution level

INTRODUCTION

Cladocerans, copepods and rotifers are the main groups of zooplankton. These groups are characteristic indicators of water quality and pollution levels and they are an important source of food chain. In Turkish inland waters in lentic habitats, these groups were partly reported in numerous publications by Saler and Sen (2002, 2010), Saler (2004, 2009), Tellioglu and Akman (2007), Bekleyen (2003), Yigit (2006), Kaya and Altindag (2007) and Bozkurt and Sagat (2008).

A few studies were conducted in rivers and stream as Goksu et al. (1997), Bozkurt et al. (2002) and Akbulut and Yildiz (2005). Any zooplanktonic research has been conducted in Munzur river. The aim of this study was to determine the zooplankton fauna of Munzur river and hence contribute to knowledge of zooplankton fauna of East Anatolia.

MATERIALS AND METHODS

Munzur river rises from the Munzur mountain located in the north of Ovacik. It combines with Pülümürc stream in the city centre of Tunceli and then pour into Kebar Dam Lake. The main part of river is flows from Tunceli province. The river is very rich in terms of red-spotted trout (Salmo trutta magrostigma). Munzur valley is very beautiful because of natural plants and step slopes, waterfalls, canyons and interesting rock formations. The valley is taken into protection as Munzur natural park. Zooplankton was sampled monthly at 4 different stations between June 2009-May 2010 (Table 1).

Samples were collected with 55 μ ore sized Hydro-Bios plankton net by horizontal hauls and the specimens were preserved. About 4% formaldehyde solution. Zooplanktonic species were identified according to Edmondson (1959), Kolisko (1974), Koste (1978a, b).

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<th>Table 1: Collection of zooplankton at different stations</th>
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Telesh (1986), Dumont and de Ridder (1987) and Scoorfield and Harding (1966). Temperature and dissolved oxygen were recorded in situ by using Oxi 315i/SET oxygen meter and pH value with Lamotte (pH 5-WC) pH meter.

RESULTS AND DISCUSSION

Zooplankton species living in Munzur river are as follows:

Phylum: Rotifera
Classis: Monogononta
Ordo: Ploimia
Família: Brachionidae
Keratella cochlearis (Gosse, 1851)
Keratella quadrata (O.F.Müller, 1786)
Notolca squamula (O.F.Müller, 1786)
Notolca acuminata (Ehrenberg, 1832)
Família: Colurellidae
Lepadella ovalis (O.F.Müller, 1786)
Família: Synchaetidae
Polyarthra vulgaris Carlin, 1943
Synchaeta pectinata Ehrenberg, 1832
Ordo: Bdelloididae
Philodina roseola (Ehrenberg,1830)
Phylum: Arthropoda
Subphylum: Crustacea
Classe: Branchiopoda
Ordo: Cladocera
Família: Daphniidae
Ceriodaphnia reticulata (Jurine, 1820)
Table 2: Monthly distribution of zooplankton fauna in the stations of Munzur river

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<td>P. roseola</td>
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<td>B. longirostris</td>
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Table 3: The monthly values of temperature, dissolved oxygen and pH recorded in Munzur river

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<td>Temperature (°C)</td>
<td>10.5</td>
<td>13.8</td>
<td>15.2</td>
<td>16.3</td>
<td>17.2</td>
<td>14.3</td>
<td>15.2</td>
<td>11.3</td>
<td>9.2</td>
<td>8.8</td>
<td>9.6</td>
<td>10.2</td>
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<td>Dissolved oxygen (mg L⁻¹)</td>
<td>7.3</td>
<td>7.5</td>
<td>7.3</td>
<td>7.8</td>
<td>6.9</td>
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<td>8.2</td>
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<td>pH</td>
<td>7.4</td>
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Família: Bosminidae

Bosmina longirostris (O.F. Muller, 1785)
Classis: Maxillopoda
Subclasis: Copepoda
Ordo: Copepoda
Família: Cyclopoidae
Cyclops vicinus Uljanin, 1875

The zooplankton of Munzur river consists mainly of cladocera, copepoda and rotifers groups. A total of 11 species comprised of 2 cladocers, 1 copepods and 8 rotifer species were identified. Monthly distribution of zooplankton fauna in the stations were shown in Table 2. All of these species are recorded for the first time in Munzur river.

Temperature, dissolved oxygen and pH values were recorded in Munzur river and shown in Table 3. In terms of species composition, rotifers have high species number in the river. The most numerous species were representatives (4 species) of the family Brachionidae. Among the species identified Keratella cochlearis and Notholca squamula were recorded virtually throughout the sampling period. In contrast, Lepadella ovalis and Synchaeta pectinata were rarely found in the river. In addition, C. reticulata was the most abundant Cladoceran species and C. vicinus was the single representative of Copepoda. The zooplankton distribution was similar at first three stations. But the 4th station has got lower flow speed. Thus, in this region of river zooplankton diversity and the number of the species and were raised.

CONCLUSION

Ecological features of recorded species were showed that most of the identified species are cosmopolitan and littoral inhabiting. Additionally Bosmina longirostris, Cyclops vicinus, Keratella cochlearis, Polyarthra dolichoptera are well known indicators of eutrophy. These species were recorded especially in the last station. This station is located in the most crowded part of the city. Also Munzur river includes distinctive species of oligotrophic and mesotrophic systems. The predominant representatives of oligotrophic aquatic systems in temperate climatic regions S. pectinata, P. dolichoptera, K. cochlearis has been observed in the river (Kolisko, 1974). Rotifiers showed higher diversity compared to other groups, reaching also high densities throughout the study period.

REFERENCES


