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A Taxonomical Study on The Rotifera Fauna of Abant Lake (Bolu)

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A Taxonomical Study on The Rotifera Fauna of Abant Lake (Bolu)

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Abstract: The rotifera fauna of Abant lake was studied taxonomically from January to November 1997. A total of 22 rotifer species were identified. Of these, 18 are new for Abant lake and 4 are new for Turkey.

Key Words: Rotifera, Abant Lake, Taxonomy, Fauna

Abant Gölü'nün (Bolu) Rotifera Faunası Üzerine Taksonomik Bir Çalışma

Özet: Ocak 1997-Kasım 1997 tarihleri arasında yapılan bu çalışmada, Abant gölü rotifera faunası taksonomik olarak incelenmiştir. Bu çalışmada 22 rotifer türü tesbit edilmiş olup, bu türlerin 18'si Abant gölü ve 4'ü Türkiye için yeni kayıttır.

Anahtar Sözcükler: Rotifera, Abant Gölü, Taksonomi, Fauna.

Introduction

Phytoplanktons and zooplanktons are the first and second steps, respectively, in the food chain of lake ecosystems. Zooplanktons in the lake ecosystems are food for invertebrates, fish, and some birds.

Copepods, cladocerans and the Rotifers are the main groups of zooplanktons. It has been indicated by some researchers that certain species of phylum Rotifera have indicator characteristics showing water quality, pollution and eutrophication (1, 2, 3).

Daday (4) was the first author to publish on Anatolian rotifers (lakes Apolyont and İznik in West Anatolia), followed by Vavra (5) and Zederbauer and Brehm (6) (the East Anatolian mountain lake (Sarıgöl) on Erciyes mountain). Then, Geldiay (7). Hauer (8) and Tokat (9) reported the distribution of rotifers in Lake Eymir and Çubuk dam near Ankara, Lake Van (Van Gölü) and Lake Hazar (Gölcük), respectively, whereas Dumont (10) reported one species from crater Lake (Krater Gölü) in Konya province.

A brief list of rotifer species from various lakes is also provided in Turkish fauna by Mann (11), Margaritora and Cottarelli (12) and Margaritora et al. (13). A relatively large number of publications dealing with the Turkish rotifers is available (Dumont and De Ridder (14); Emir (15, 16); Ustaoğlu (17); Ustaoğlu and Balık (18, 19, 20); Altındağ and Sözen (21); Altındağ and Özkurt (22)).

Four different species of Rotifera are reported for the first time in Turkish fauna by the present study.

Study area

Lake Abant, located 30 km south-west of Bolu, Turkey (40°37'0" N/31°15"0" E), was formed by an obstruction of rock debris blocking the valley at its location, at an elevation of 920 m from sea level, with a surface area of 45 km^2 and maximum depth of 40 m (Figure 1) within the Notrh Anatolian earthquake zone, and is tectonic in origin (23), emptying excess water into the Dirgene river by a natural waterway. Lake Abant, a very important tourist point, is surrounded by reeds. Trout (*Salmo trutta abanticus*), chub (*Leuciscus cephalus*) and barbel (*Barbel capito*) are found in the lake. Trout production is approximately 100.000 kg per annum (24).

Material and Method

The study was carried out from January to November 1997. The samples were collected on a monthly basis from the four stations of the lake (Figure 1). The rotifer samples were collected with the aid of a plankton net (25 cm diameter and 55 μm mesh size) by horizontal and vertical hauls at each station. Horizontal hauls were performed by moving to the haul point from a distance of 100 m or for 5 minutes while vertical samples were collected at every 5 m depth. The samples were preserved in 4% formaldehyde solution immediately after

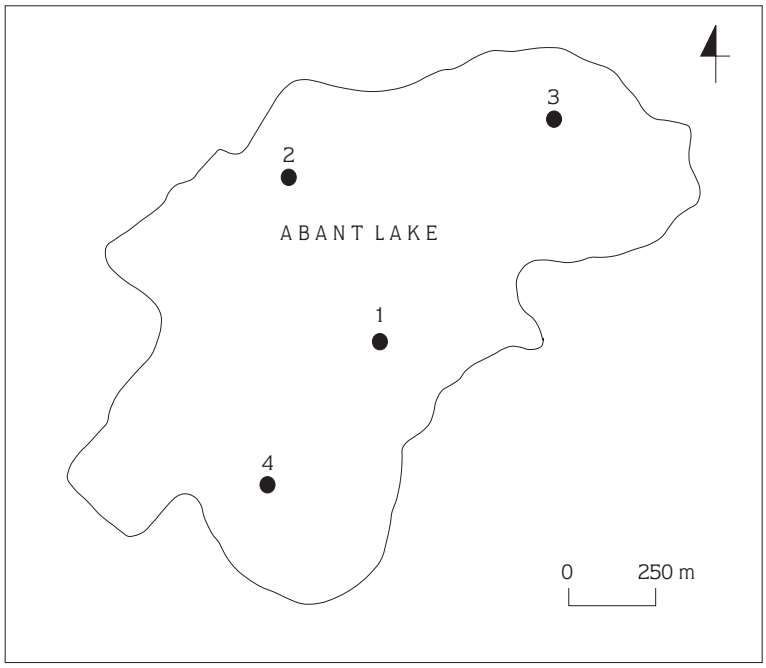

Figure 1. The map showing stations studied in Lake Abant

collection. The identification of the rotifer species was made according to Kolisko (25), Koste (26), Edmondson (27) and Ward and Whipple (28). The photographs (Figure 2-5) of newly recorded rotifer species were taken by inverted microscopy.

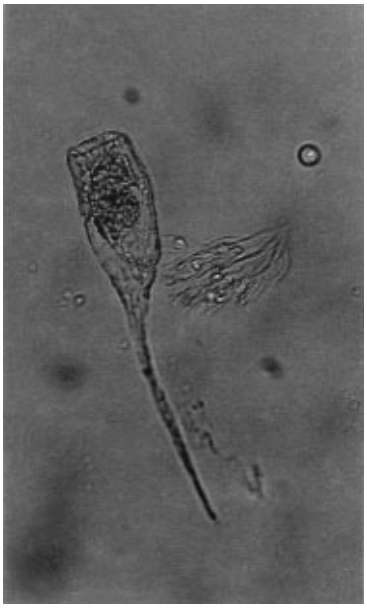

Figure 2. *Colletheca pelagica* (Lateral view)x500

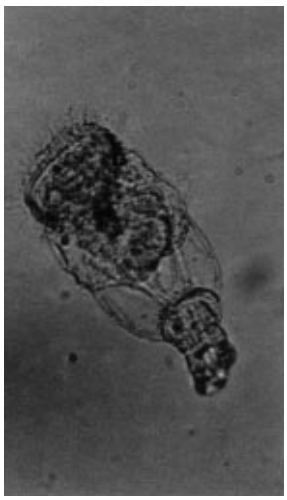

Figure 3. *Conochilus hippocrepis* (Dorsal view)x500

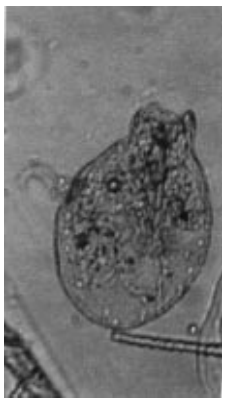

Figure 4. *Gastropus stylifer* (Ventral view)x500

Figure 5. *Ascomorpha ecuadis* (Ventral view)x1000

Result and Discussion

The rotifer species living in Lake Abant are:

Phylum-Rotifera

Class-Monogononta

Order-Ploima

Family-Brachionidae WESENBER-LUND 1899

Species-*Kellicottia longispina* (KELLICOTT, 1879)

Species-*Keratella quadrata* (O. F. M., 1876)

Species-*Keratella cochlearis* (GOSSE- 1851)

Species-Lecanidae BARTOS, 1959

Species-*Lecane lunaris* (EHRENBERG, 1832)

Species-*Lecane hamata* (STOKES, 1896)

Family-Colurellidae BARTOS, 1959

Species-*Colurella adriatica* (EHRENBERG, 1831)

Family-Synchaetidae REMANE, 1933

Species-*Polyarthra vulgaris* CARLIN, 1943

Species-*Polyarthra dolichoptera* (IDELSON, 1925)

Species-*Synchaeta litoralis* ROUSSELET 1902

Species-*Synchaeta pectinata* (EHRENBERG, 1832)

Family-Filinidae BARTOS, 1959

Species-*Filinia longiseta* (EHRENBERG, 1834)

Family-Conochilidae REMANE, 1933

Species-*Conochilus hippocrepis* (SCHRANK, 1830)

Family-Euchlanidae BARTOS, 1959

Species-*Euchlanis dilatata* (EHRENBERG, 1832)

Family-Trichotriidae

Species-*Trichotria pocillum* (O. F. M., 1776)

Family-Gastropodidae REMANE 1933

Species-*Gastropus stylifer* (IMHOF, 1891)

Species-*Ascomorpha ecuadis* (PETRY, 1850)

Family-Collothecidae BARTOS 1959

Species-*Collothecidae* BARTOS 1959

Species-*Collotheca ornata* (EHRENBERG, 1832)

Species-*Collotheca pelagica* (ROUSSELET, 1893)

Family-Asplanchnidae H. & M., 1926

Species-*Asphlanchna girodi* (DE GUERNE, 1888)

Species-*Asphlanchna priodonta* (GOSSE, 1850)

Family-Mytilinidae BARTOS, 1959

Species-*Lophocharis salpina* (EHRENBERG, 1834)

It was found that the main part of the identified species is cosmopolitan and includes distinctive species of oligotrophic lakes. Most of the species (*Cephalodella catellina, Collotheca ornata, Euclanis dilatata, Filinia longiseta, Lecane hamata, L. lunaris*) are cosmopolitan and littoral, inhibiting the aquatic macro-vegetation (Kolisko 25). The 6 rotifer species, viz. *Asphlanchna brightwelli* (syn: A. *girodi*), *Conochilus unicornis, Filina terminalis, Kellicottia longispina, Keratella cochlearis,* and *Keratella quadrata* were identified by Margaritora and Cottarelli (12). Four of these (*Asphlanchna birghtwelli, Kellicottia longispina, Keratella cochlearis, K. quadrata*) were observed in the present investigation. Apart from these, the rotifer species identified in lakes, viz. *Notholca squamula, Lecane lunaris, Lecane hamata, Colurella adriatica, Polyarthra dolichoptera, P. vulgaris, Synchaeta pectinata, S. litoralis, Filinia longiseta, Conochilus hippocrepis, Euchlanis dilatata, Collotheca ornata, C. pelagica* and *Lophocharis salpina,* are new records for Lake Abant, and 4 of these species, viz. *Collotheca pelagica, Conochilus hippocrepis, Gastropus stylifer* and *Ascomorpha ecuadis,* are new records for Turkey.

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