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Brachionidae (Rotifera: Monogononta) Species from Turkey

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Abstract: Fifteen species of Brachionids (Monogononta: Brachionidae) are recorded from 13 water sites in Turkey. One of them, *Notholca striata* (Müller) is new record for the Turkish fauna. The total number of species included 7 species of the genus *Brachionus*, 4 species of the genus *Keratella*, 3 species of the genus *Notholca* and 1 species of *Platyias*. The samples generally were collected between 2005 and 2006, but two of them were collected on 20.08.1990. Some measurements of the species were given.

Key words: Zooplankton, rotifera, *Brachionus*, taxonomy, Turkey

INTRODUCTION

Although many studies describing the environmental conditions of Turkish lakes exist to date, most of these studies have dealt with the seasonal fluctuations and hydrological changes. During the last two decades, many investigators focused their studies on the rotifer fauna of Turkish inland waters and significant progress has been achieved in the assessment of the Rotifera fauna of Turkey (Dumont and De Ridder, 1987; Segers *et al.*, 1992; Altındağ and Yi, 1999; Emir, 2004).

The family Brachionidae are presently believed to include seven genera (Koste, 1978), *Brachionus*, *Keratella*, *Notholca*, *Anuraeopsis*, *Kellicottia*, *Platyias* and *Paramuraeopsis*. Of these, the first five genera are represented in Turkey.

MATERIALS AND METHODS

The samples were collected using 50 and 55 µm plankton nets. They were fixed in 4% formalin. The sampling localities (Fig. 1) are listed below, with the sampling dates given after each locality. Specimens were analyzed under a stereomicroscope and identified using a compound microscope. Camera lucida was used for drawings.

List of localities:

1. Selim, 40° 28' N, 42° 44' E (Kars) : 20.08.1990.
2. 40° 36' N, 43° 06' E (Kars) : 20.08.1990.
3. Soysalli, Develi (Kayseri) : 25.12.2005.
4. Zamantı River, Develi (Kayseri): 28.12.2005.
5. Ağcaşar Dam Lake, Develi (Kayseri) : 25.12.2005.
6. Homurlu Stream, Develi (Kayseri): 27.12.2005.
7. Kizilirmak, Karakeçili (Kirikkale): 18.12.2005.
8. Acisu, Karakeçili (Kirikkale): 18.12.2005.

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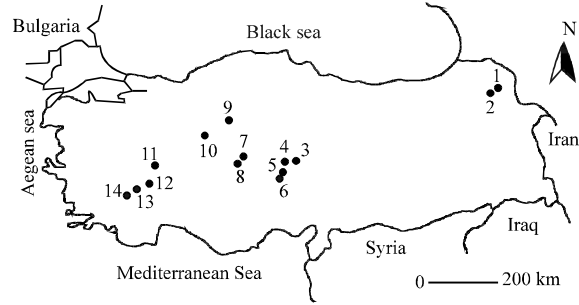


Fig. 1: The sampling localities. The numbers refer to the localities given in the text

9. Atatürk Orman Çifliği (Ankara): 01.12.2005
10. Lake Eber (Afyon): 14.07.2006.
11. Lake Eğirdir (Isparta): 01.12.2005.
12. Lake Kovada (Isparta): 02.10.2005.
13. Lake Burdur (Burdur): 02.10.2005.

RESULTS AND DISCUSSION

Twenty-nine species of Brachionidae (1 species of the genus *Platyias*, 16 species of the genus *Brachionus*, 6 species of the genus *Keratella*, 3 species of the genus *Notholca*, 1 species of the genus *Kellicottia* and 2 species of the genus *Anuraeopsis*) have been recorded from Turkish inland waters to date (Ustaoğlu, 2004). We identified 15 species of the family Brachionidae (7 species from *Brachionus*, 4 species from *Keratella*, 3 species from *Notholca* and 1 species from *Platyias*) from Turkish inland waters. One of them, *Notholca striata* (Müller) is new record for the Turkish fauna.

List of species:

- Brachionus angularis* (Gosse) (Fig. 2C and D): Loc. 2, 4, 9, 10.
Brachionus calyciflorus Palas (Fig. 4A and B): Loc. 9, 12.
Brachionus leydigii Cohn (Fig. 4A and B): Loc. 5.
Brachionus plicatilis Müller (Fig. 3C and D): Loc. 13.
Brachionus quadridentatus Hermann (Fig. 2A and B): Loc. 12.
Brachionus rubens Ehrenberg (Fig. 3E and F): Loc. 10, 12.
Brachionus urceolaris Müller (Fig. 3A and B): Loc. 1.
Keratella cochlearis (Gosse) (Fig. 5B and C): Loc. 1, 3, 4, 5, 6, 11, 12.
Keratella quadrata (Müller) (Fig. 5D and E): Loc. 4, 7, 9.
Keratella tecta (Gosse) (Fig. 5A): Loc. 12. *Keratella tropica* (Apstein) (Fig. 5F): Loc. 4, 12, 13.
Notholca acuminata Ehrenberg (Fig. 6B): Loc. 9.
Notholca squamula (Müller) (Fig. 6A): Loc. 5, 6.
* *Notholca striata* (Müller) (Fig. 7A and B): Loc. 8.
Platyias quadricornis (Ehrenberg) (Fig. 6C): Loc. 4, 9.
* New record for Turkish rotifer fauna

***Brachionus angularis* (Gosse):** Cosmopolitan. Measurements: Length 174 µm, width 140 µm.

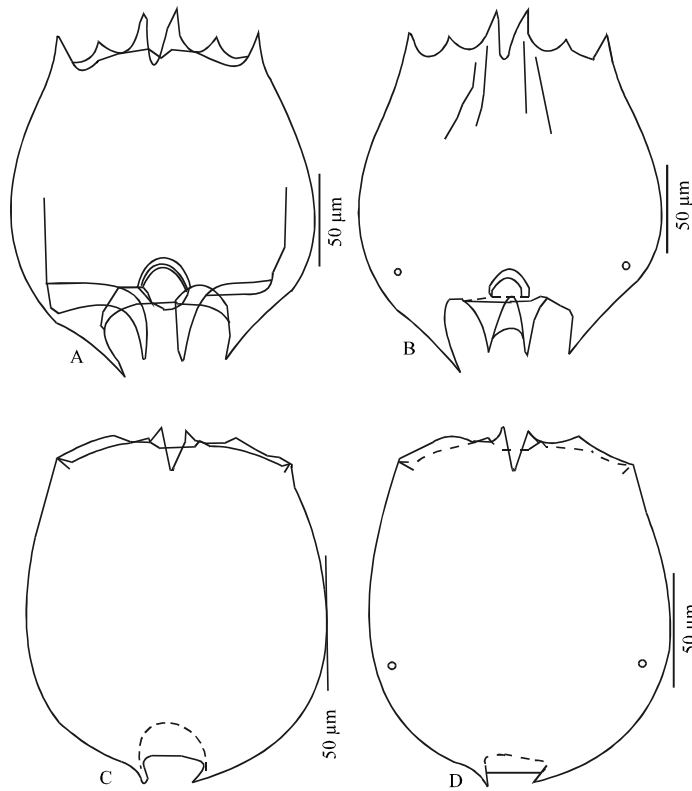


Fig. 2: (A and B) *Brachionus quadridentatus* (Lake Kovada-Isparta), (C and D) *Brachionus angularis* (Lake Eber-Afyon). (A and C) Ventral view, (B and D). Dorsal view. Scale bars 50 µm

***Brachionus calyciflorus* Palas:** It is cosmopolitan in alkaline waters in Turkey. Measurements: Length 229 µm, width 110 µm, posterior lateral spines 84-93 µm, anterior median spines 43-47 µm.

***Brachionus leydigii* Cohn:** It is cosmopolitan in alkaline waters in cold season. Anterior median spines longer than submedian and lateral spines, foot opening with 3 short spines.

Measurements: Length 268 µm, width 218 µm, anterior median spines 32-35 µm, anterior submedian spines 21-22 µm, anterior lateral spines 20-21 µm.

***Brachionus plicatilis* Müller:** Cosmopolitan in saline and brackish waters. Measurements: Length 247 µm, width 188 µm.

***Brachionus quadridentatus* Hermann:** Cosmopolitan. Anterior median spines longer than anterior submedian spines, anterior submedian spines longer than anterior lateral spines. Measurements: Length 202 µm, width 170 µm, anterior median spines 29-30 µm, anterior submedian spines 9-10 µm, anterior lateral spines 14-15 µm.

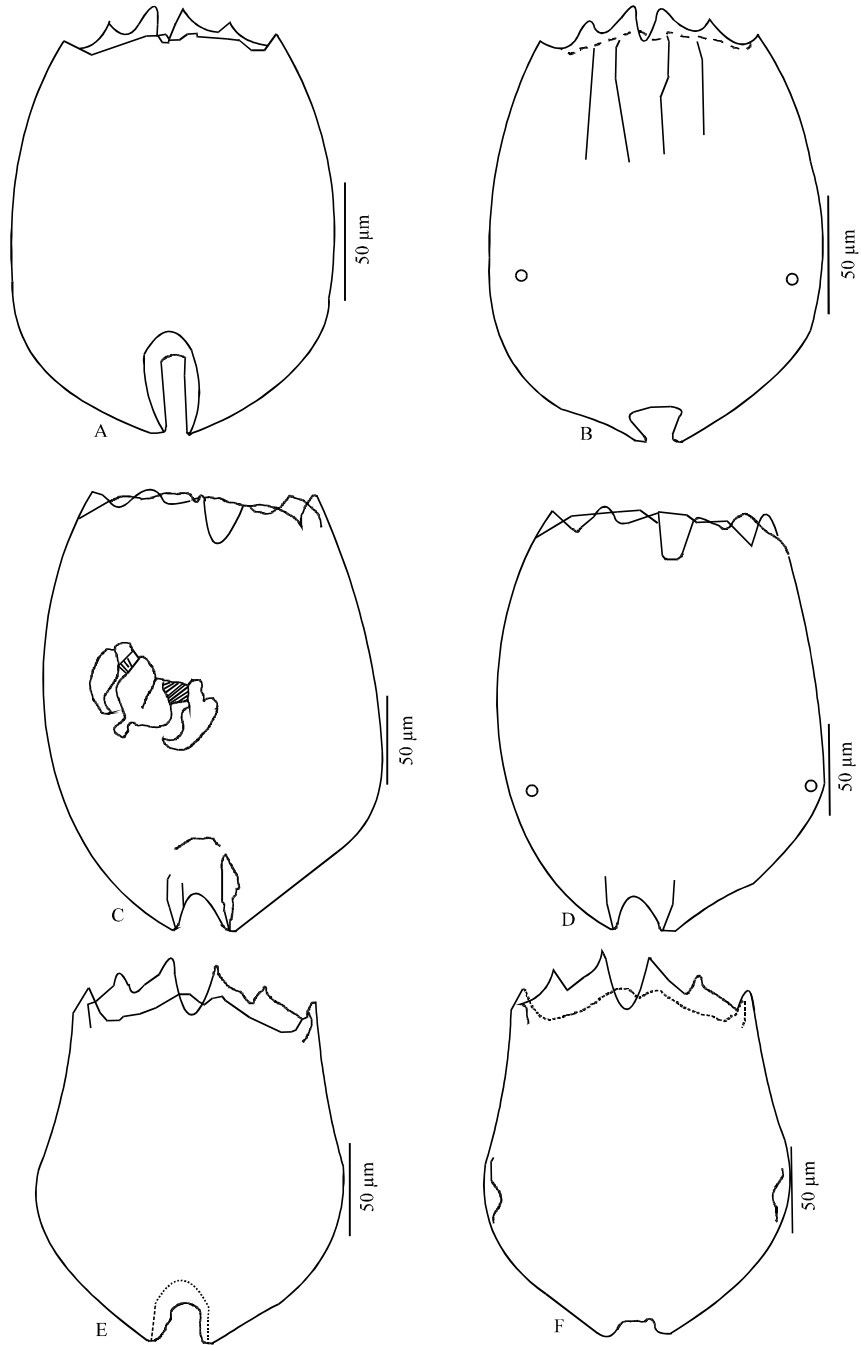


Fig. 3: (A and B): *Brachionus urceolaris* (Selim-Kars), (C and D.) *Brachionus plicatilis* (Lake Burdur-Burdur), (E and F.) *Brachionus rubens* (Lake Eber-Afyon). (A, C and E) Ventral view, (B, D and F) Dorsal view. Scale bars 50 µm

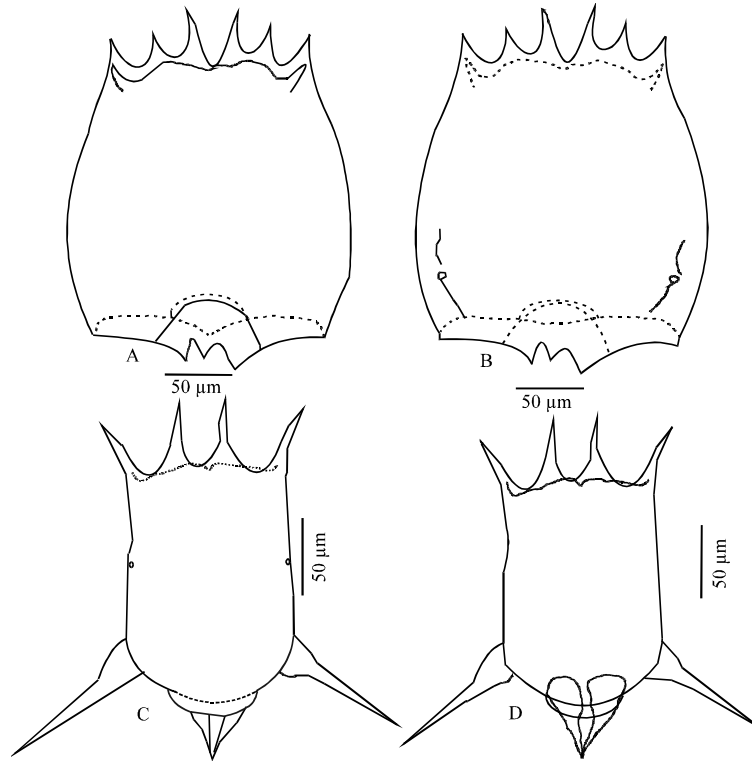


Fig. 4: (A and B) *Brachionus leydigii* (Ağcaşar Dam Lake-Kayseri), (C and D) *Brachionus calyciflorus* (Lake Kovada-Isparta) (A and D) Ventral view, (B and C) Dorsal view. Scale bars 50 µm

***Brachionus rubens* Ehrenberg:** It is cosmopolitan fresh and alkaline waters in Turkey. Measurements: Length 216 µm, width 171 µm.

***Brachionus urceolaris* Müller:** Cosmopolitan. Measurements: Length 185 µm, width 143 µm. According to Koste and Shiel (1987), length of *B. urceolaris* is 200-300 µm. Our measurement is smaller than theirs.

***Keratella cochlearis* (Gosse):** Cosmopolitan. Measurement: Length 129 µm.

***Keratella quadrata* (Müller):** Cosmopolitan. Measurement: Length 274-334 µm.

***Keratella tecta* (Gosse):** Cosmopolitan. Measurements: Length 104 µm, width 67 µm.

***Keratella tropica* (Apstein):** Cosmopolitan in eutrophic waters. Measurement: Length 201 µm.

***Notholca acuminata* Ehrenberg:** It is cosmopolitan in brackish waters in cold season. Measurements: Length 269 µm, width 108 µm, median occipital spines 35-37 µm, submedian spines 10-13 µm, lateral spines 30-34 µm.

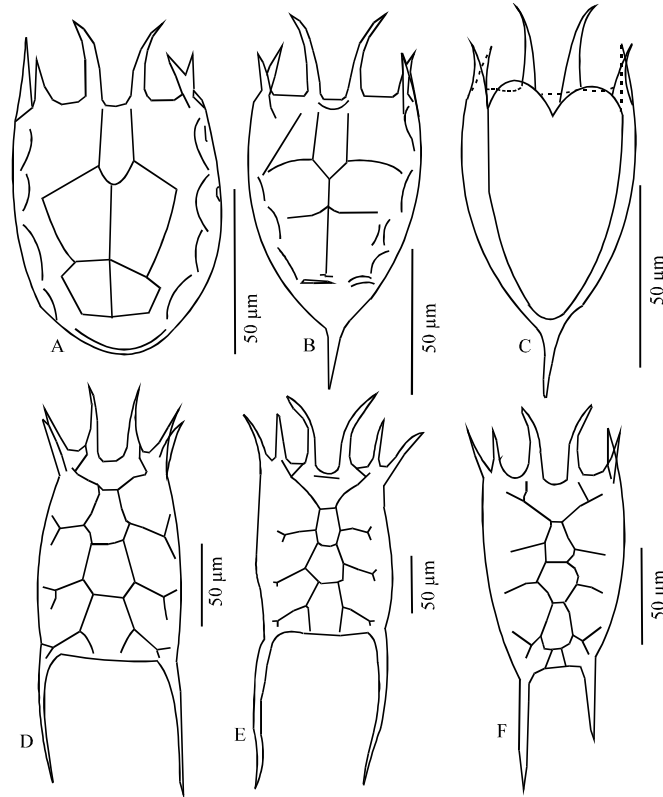


Fig. 5: (A) *Keratella tecta* (Lake Kovada-Isparta), (B and C) *Keratella cochlearis* (Lake Kovada-Isparta), (D and E) *Keratella quadrata* (Zamanti River-Kayseri), (F) *Keratella tropica* (Lake Kovada-Turkey) (C) Ventral view (A, B, D, E and F) Dorsal view. Scale bars 50 µm

***Notholca squamula* (Müller):** It is cosmopolitan in brackish waters in Turkey. Measurements: Length 153 µm, width 111 µm, median occipital spines 16-17 µm, submedian spines 7-8 µm, lateral spines 17-19 µm.

***Notholca striata* (Müller):** Lorica ovate or more elongate, rounded behind. With rather strong striae on dorsal plate. Two lateral mobile setae on the posterior part of lorica, rather stout but short. Marine species, especially in the littoral zone. Planktonic close to the bottom (Berzins, 1960). Measurements: Lorica length 122.7 µm, lorica width 80.1 µm.

According to Akbulut and Yıldız (2005), 229 rotifer species had been identified from Turkey. After that, *Dicranophorus epicharis* (Harring and Myers), *Lecane rhytida* (Harring and Myers), *Lecane obtusa* (Murray) and *Testudinella parva* (Ternetz) were given new record species to Turkish rotifer fauna by Altındağ *et al.*, (2005). *Notholca striata* was given new species to Turkish rotifer fauna in the present study and as a result of the studies the number of the rotifer species increased from 229 to 234 in Turkey.

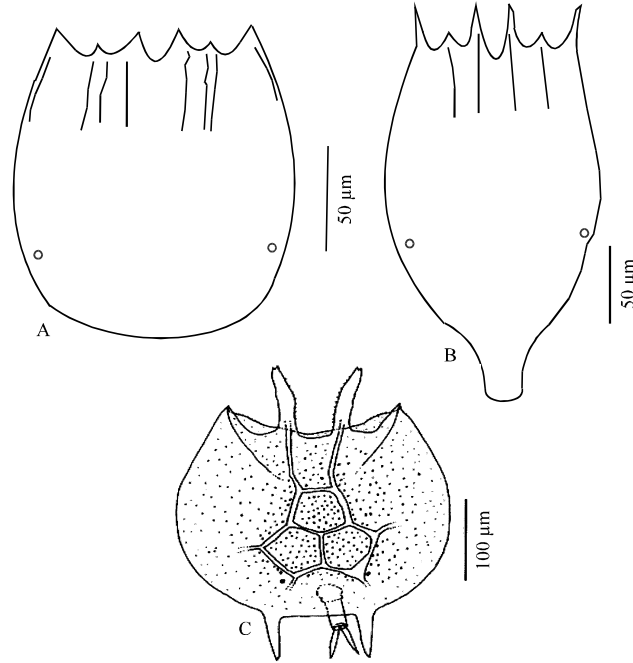


Fig. 6: (A) *Notholca squamula* (Ağcaşar Dam Lake-Kayseri), (B) *Notholca acuminata* (Atatürk Orman Çiftliği-Ankara), (C) *Platyias quadricornis* (Atatürk Orman Çiftliği-Ankara). (A, B and C) Dorsal view. Scale bars: (A and B) 50 µm and (C) 100 µm

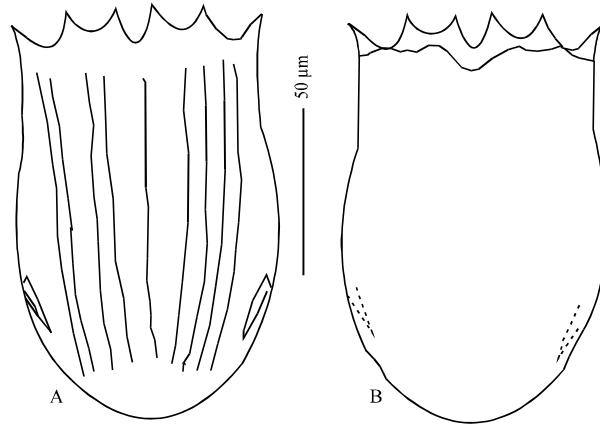


Fig. 7: *Notholca striata* (Acısu, Karakeçili- Kırıkkale), (A) Dorsal view and (B) Ventral view, Scale bar: 50 µm

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