

To the memory of late Dr. Olga Urbanc Berčič
(National Institute of Biology, Ljubljana)

Planktonic rotifers from Lake Cerknica (Slovenia)

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Abstract. The basic hydrobiological conditions as well as the planktonic Rotifer assemblages of the Lake Cerknica (Slovenia) were investigated first time in 2004-2005. 16 taxa were found, most of them are frequent in Central Europe. The preliminary results suggest a pressing need for further research.

The Lake Cerknica (Cerkniško Jezero, Slovenia, N 45°46'02", E 14°22'21") is the largest intermittent karstic lake in Europe. It lies in Slovenia, in the southern part of Cerknica polje, with a catchments area of 475 km². The surface of the lake can reach up to 27 km², the surface level varies from 546 to 551 meters above sea level. The average yearly precipitation is 1700 mm, 80% of the lake's inflow consist of karst waters, 15% of surface waters (Gaberšček 2003). The planktonic rotifer assemblages of the lake have not been investigated before. The aim of the study was to get the basic information about the rotifer fauna of the lake, besides the ecological and hydrochemical parameters.

METHODS

Samples were taken from 4 characteristic sites in the lake, by filtering 10-10 liters water through a 40-µm mesh-size plankton net. The sampling sites represented characteristically different parts of the lake:

Site 1: *Dolenje Jezero (Lower Lake), bridge of River Stržen*

Site 2: *Gorenje Jezero (Upper Lake), bridge of River Olerh*

Site 3: *Dolenje Jezero, sinking holes*

Site 4: *Zadnji Kraj*

The sampling sites were visited on foot and by boat, respectively (Fig. 1). Samples were collected from the depths of 15-25 cm. After collection they were taken to the laboratory, but also instantly preserved in a 4 % formaldehyde solution. Live specimens were collected to be able to make accurate identifications (Koste, 1978; Segers, 2007) and they were analysed within 4-5 hours. Specimens in the preserved samples were counted in a Sedgewick-Rafter chamber. Besides the collections of rotifers, the physico-chemical parameters were also recorded with a Multiline-P field device on the field: water temperature, pH, conductivity, dissolved oxygen content and oxygen saturation. The water level was low at the time of both investigations.

RESULTS

The physico-chemical parameters measured on the field are summarized in the Table 1. There were marginal differences between the parameters of sampling sites, excluding the site 3, where the lowest conductivity was measured (Tab. 1).

16 rotifer taxa were found, most of them in 2004 (Tab. 3). All species are common in Central Europe. The taxon number and abundance was relatively low, except the site 3, 2004. The taxon-number and diversity were markedly lower, the dominance higher in 2005 than in the year before (Tab. 2). These preliminary results suggest that

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Figure 1. Rotifer sampling from site 1

the Lake Cerknica has diverse and colorful rotifer assemblages, which call for a further, particular investigation.

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Table 1. Physical-chemical parameters measured on the field

Date	10. 09. 2004			29. 06. 2005		
Site	1	2	3	1	2	4
Temperature (°C)	18.6	19.3	18.9	21.5	14.1	21.9
pH	7.4	7.7	8.0	7.9	7.8	7.4
Conductivity (µS/cm)	497	475	339	429	478	478
Oxygen concentration (mg/L)	5.86	14.53	9.13	9.15	8.07	3.61
Oxygen saturation (%)	63.1	166.9	104.3	110.2	84.0	42.6

Table 2. Ecological parameters

Year	2004			2005		
Site	1	2	3	1	2	4
Taxa S	5	6	9	2	2	3
Individuals 10 L ⁻¹	125	120	12750	100	50	100
Dominance D	0,2	0,19	0,34	0,63	0,5	0,38
Shannon H	1,60	1,73	1,42	0,56	0,69	1,04
Evenness	1	0,94	0,46	0,88	1	0,94
Equitability J	1	0,97	0,65	0,81	1	0,95

Table 3. Quantitative data of rotifers (ind./10 L)

Year	2004			2005		
	1	2	3	1	2	4
Lake Cerknica						
<i>Brachionus angularis angularis</i> Gosse, 1851	0	0	525	75	0	50
<i>Bdelloidea</i> sp.	25	0	25	0	0	0
<i>Hexarthra mira</i> (Hudson, 1871)	0	0	50	0	0	0
<i>Keratella cochlearis cochlearis</i> (Gosse, 1851)	0	0	1700	25	0	0
<i>K. cochlearis macracantha</i> (Lauterborn, 1900)	0	0	6825	0	0	0
<i>K. quadrata quadrata</i> (O. F. Müller, 1786)	0	0	50	0	0	0
<i>Lepadella ovalis</i> (O. F. Müller, 1786)	0	15	0	0	0	25
<i>L. patella</i> (O. F. Müller, 1773)	0	15	0	0	25	25
<i>Polyarthra dolichoptera</i> Idelson, 1925	0	0	1250	0	0	0
<i>P. longiremis</i> Carlin, 1943	25	15	1825	0	0	0
<i>Scaridium longicaudum</i> (O. F. Müller, 1786)	25	0	0	0	0	0
<i>Squatinella rostrum</i> (Schmarda, 1846)	0	15	0	0	0	0
<i>Synchaeta tremula</i> (O. F. Müller, 1786)	0	30	0	0	0	0
<i>Testudinella patina</i> (Hermann, 1783)	25	0	0	0	0	0
<i>Trichocerca birostris</i> (Minkiewitz, 1900)	25	0	500	0	0	0
<i>Trichotria pocillum</i> (O. F. Müller, 1776)	0	30	0	0	25	0
Total abundance:	125	120	12750	100	50	100

INDEX

ANDRÁSSY, I.: Two new and a known species of the family Tripylidae (Nematoda: Enoplida) from the tropics.....	3
BLAKEMORE R. J.: Review of Criodrilidae (Annelida: Oligochaeta) including <i>Biwadrilus</i> from Japan	11
CSUZDI, Cs. & POP, V. V.: Taxonomic and biogeographic analysis of the <i>Allolobophora sturanyi</i> species group (Oligochaeta, Lumbricidae).....	23
KONTSCHÁN, J.: A review of the Neotropical family Tetrsejaspidae (Acari: Uropodina) with descriptions of three new species.....	29
MAHUNKA, S. & MAHUNKA-PAPP, L.: Faunistical and taxonomical studies on oribatids collected in Albania (Acari: Oribatida), I.....	43
UJVÁRI, ZS.: New records of zerconid mites (Acari: Mesostigmata) from Mts. Papuk, Croatia, with description of <i>Zercon kotschani</i> sp. n.	63
ZICSI, A. & CSUZDI, Cs.: Report on the soil-zoological expeditions to Ecuador and Colombia between 1986-1993. I. list of localities and habitats of »Berlese« samples	71
<i>Communicationes Breves</i>	
NÉMETH, Á. & VADÁSZ, Cs.: First record of the Zitting Cisticola (<i>Cisticola juncidis</i> Rafinesque, 1810) in Hungary.....	89
SCHÖLL, K.: Planktonic rotifers from Lake Cerknica (Slovenia).....	91