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# First distributional report of *Brachionus donneri* Brehm, 1951 (Rotifera: Rotatoria: Ploimida) from Kerala, India

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Short Communication

## Abstract

This work reports the first distributional record of *Brachionus donneri* Brehm, 1951 in south India from the Enamakkal Lake of Thrissur, Kerala. Though it comes under the oriental endemics, no previous records of this species were available from this area or other parts of Peninsular India except Tamil Nadu. The occurrence of *B. donneri* in this additional geographic region highlights the range extension of the species.

***Keywords***: *Brachionus donneri, Kerala, lake Enamakkal, rotifers, distribution*

## Introduction

Rotifers are the main primary freshwater invertebrates which are essential to many freshwater environments (Segers, 2008). The richness of Brachionidae and Brachionus from different parts of India varies between 7-32 (19±6) species and 5-18 (11±4) species, respectively (Sharma, 2014). Eutrophication, salinization, and the quality of the water are the main factors affecting their diversity and distribution (Kumar and Kiran, 2015). Anitha and Rani (2016) reported 42 species of rotifers belonging to 16 genera from two low-saline backwaters of Kerala and the family Brachionidae was the predominant one in their investigation. Segers (2008) stated that the majority of studies on the distribution of freshwater rotifers were done in the Palearctic and Nearctic realms. The *B. donneri,* which is considered a common oriental species (Sharma and Sharma, 2014) was originally described by Brehm from Madras, India (Brehm, 1951; Sharma, 2014) and its occurrence has been reported earlier only from Madras and the north-eastern part of India. Except for Tamil Nadu, studies on rotifers from peninsular India have not yet documented this species. This study reports the first occurrence of *B. donneri* from Kerala.

## Material and methods

Enamakkal Lake (Fig. 1) is a backwater lake situated at Enamakkal of Thrissur district in Kerala and lies in line with Vembanad *Kole* wetlands. The lake covers about 25 km$^2$ area. It lies at a Latitude of 10.5059º N and a Longitude of 76.0848º E. The studies were carried out monthly from October 2018 to September 2019. Rotifer collections were made after sunset from the surface of the water column at different sites by filtering 100 L of water through a conical plankton net of bolting silk having a mesh size of 50 $\mu$m. It was then preserved in 4% formaldehyde and observed with a Labomed LX-400 digital microscope fitted with an image analyser. The microscopic images of the specimens were taken with a magnification of 40x and identified using standard key and literature (Ward and Whipple, 1958; Sharma, 1983; Battish,1992).


Fig. 1. Map of the study area with sampling locations (source: google map)

## Results and discussion

### *Systematics*

Class : Rotatoria
Order : Ploimida (Hudson and Gosse)
Family : Brachionidae Ehrenberg
Genus : Brachionus Pallas

*Brachionus donneri* Brehm, 1951

### *Description*

The morphometrics of the specimen (Fig. 2) showed a significant variance in the length of the lorica and anterior lorica width (Table 1). The morphometry of the specimen collected between October 2018 and July 2019 was not found to match the ranges given by Chengalath *et al.,* 1973. In this case, the lorica length and lorica width at the anterior end were significantly smaller than the range given by Chengalath *et al.,* 1973. This specimen has 6 blunt spines on both the ventral and dorsal margins (Chengalath, 1973; Berzins, 1973) whereas the specimen of Brehm, 1951 shows six blunt spines at the anterior dorsal margin. The lateral processes of the lorica are prominent and lateral antennae on conical protuberance. The posterior projections of the lorica or foot opening spines are club-shaped and have a deep sinus between them (Brehm, 1951; Koste, 1978)

Table 1. Morphometric measurements of the present study specimens compared with the available specimen measurements in the literature

| Measurement of the specimen | (July 2019) | (October 2018) | Chengalath *et al.,* 1973 |
|---|---|---|---|
| Lorica length(μm) | 122 | 123 | 206 |
| Lorica width at the anterior end (μm) | 70.5 | 71 | 170 |

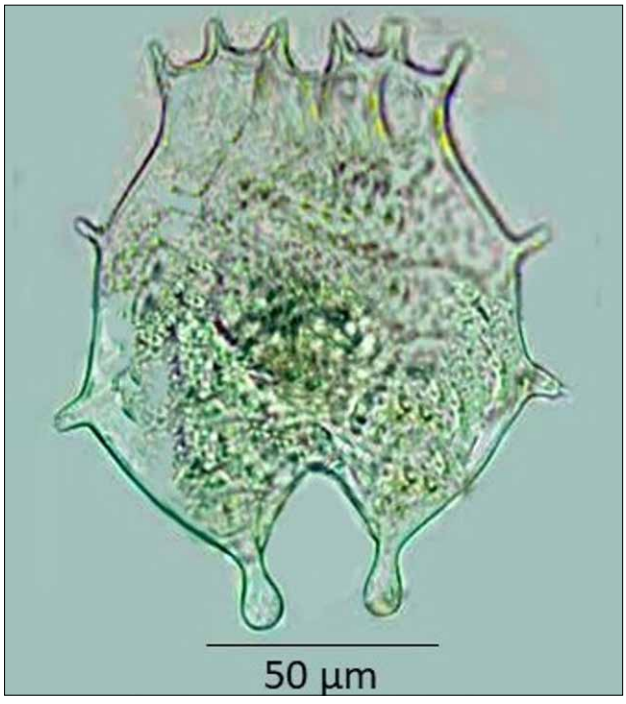


Fig. 2. *B. donneri* collected during monsoon (2019) from Enamakkal Lake

### *Distribution*

The *B. donneri*, originally described from Madras, India (Brehm, 1951), has also been reported from Cambodia (Berzins, 1973), Sri Lanka (Chengalath *et al.,* 1973) and Gatun Lake, Panama (Koste and Jose de Paggi, 1982). It is an oriental species (Sharma and Sharma, 2014). In India, the current distributional ranges of *B. donneri* now include North East India (Sharma and Sharma, 2005), South Andaman, and Nicobar Islands (Sharma, 2017). The *B. donneri* was collected for the first time in October 2018 and it represented 2% of rotifer abundance. It was later recorded in July 2019 and accounted for 3% of the abundance of rotifers. A total of 5 specimens were recorded during these times. The salinity of the lake in these two months was 7.8 ppt and 0.36 ppt respectively at the time of observations owing to the significant influence of monsoonal and tidal forces on the hydrographic parameters in these areas. Being primarily a freshwater species, its infrequent appearance in a backwater lake is undoubtedly due to the river discharge, which is notably large during the monsoons. Despite the numerous plankton studies being undertaken in this region, the first report of *B. donneri* strongly suggests that it has a scarce and isolated distribution.

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