BRACHIONID ROTIFER OF YE RIVER MOUTH IN SOUTHERN MON COASTAL WATER

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Abstract

Studies on diversity of brachionid rotifers were conducted at Ye River Mouth (Lat. 15° 04′ N and Lat. 15° 12' N, Long. 97° 46' E and Long. 97° 48' E) in southern Mon coastal water from January to December 2018. Mon coastal water rotifers are least studied and authenticated records are not available for sufficing the data on their biodiversity. Rotifers were collected from brackish water to know their species diversity. A total of 12 species of branchionid rotifers identified during this study are *Brachionus angularis* Gosse, 1851, *B. calyciflorus* (Pallas, 1766), *B. caudatus* Barrois & Daday, 1894, *B. diversicornis* (Daday, 1883), *B. donneri* Brehm, 1851, *B. falcatus* (Zacharias, 1898), *B. forficula* Wierzejski, 1891, *B. murrayi* (Fadeew, 1925), *B. plicatilis* (Müller, 1786), *B. quadridentatus* Hermann, 1783, *B. rotundiformis* (Tschugunoff, 1921) and *B. urceolaris* (Müller, 1773). This is a primary record on brachionids of euryhaline water of Ye River Mouth. The detailed description of the rotifers recorded during the study in southern Mon coastal water is presented for substantiating the taxonomic relevance of the study.

Keywords: Brachionid, rotifer, brackish, Ye River Mouth, southern Mon coastal water.

Introduction

Rotifers make up a phylum of microscopic and near-microscopic pseudocoelomate animals. There are some pioneering efforts towards the end of eighteenth century to provide a systematics for rotifers based on morphological details (Hudson and Gosse, 1889). Rotifers may be free swimming or truly planktonic, others move by inch worming along the substrate whilst some are sessile, living inside tubes or gelatinous holdfasts. Most species of rotifers are about 200 to 500 μm long. However a few species, such as *Rotaria neptunia* may be longer than a millimeter.

Rotifers are microscopic animals, their diet consist of matter small enough to fit through their tiny mouths during filter feeding. Rotifers are primarily omnivorous, but some species have been known to be cannibalistic. The diet of rotifers most commonly consists of dead or decomposing organic materials, as well as phytoplankton that are primary producers in aquatic communities. Such feeding habits make some rotifers primary consumers. There are about 2000 species of rotifers, divided into two classes, Monogononta and Bdelloidea. Monogononta is the largest group with around 1500 different species. Order Bdelloida is of particular note because of the absence of males and the ability of cryptobiosis.

In Myanmar context the study about rotifers are few when compared to the global research. The history of Myanmar rotifers dates back to the initial period of rotifer systematics started with a brief note on rotifers in some Myanmar waters. The available literature shows that the earlier works on Myanmar rotifers were limited to certain regional water bodies. Over the last three decades there were a few research priorities to address these lacunae on observing and classifying rotifer fauna in Myanmar waters. Hitherto, the study about the rotifers present in the brackish waters is meagre. Since coastal ecosystems like mangroves and coral reefs harbour a variety of fishes, it is imperative to study the rotifers in the ecosystem which are the driving force behind the survival of most of them. The objective of this study is to observe how many species of brachionid rotifers in brackish water of Ye River Mouth in southern Mon coastal water.

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Materials and Methods

Rotifer samples were collected from the brackish waters of Ye River Mouth in southern Mon coastal water (Fig. 1). Since the density of rotifer present in pure saline waters of Mon coastal water are very less, the present study is restricted to the brackish water areas only. Samples were collected from January to December 2018. Rotifer samples were collected by filtering 5 litres of water from a particular site. Water samples at a site were collected from various depths instead of a particular point to avoid sampling errors.

In the present study, the samplings were done in the evening time between 3 to 5 p.m., as rotifers have the tendency to migrate vertically for grazing on nutrient rich phytoplankton in the upper water column. During the filtering process, water was collected from various depths and different points using a small bucket of 5 litres and was filtered through the net of mesh size 40 µm. Collected samples were transferred to a 100 ml sampling bottle and fixed with 5% formaldehyde immediately to avoid clumping of rotifers. Fixed samples were carried to the laboratory for further analysis.

Samples were kept in dark and cool area. Primarily all the samples were analysed for the density of the rotifers present in the samples. The density was counted using sedge wick-rafter plankton counting cell. Further analysis for the species identification was done with binocular microscope. The samples were thoroughly analysed for the presence of various rotifer species and photographs of the desired species were taken using digital camera. The identification of rotifer samples were followed by Battish (1992), Fontaneto, De Smet and Melone (2008), and Phan and Le (2012).

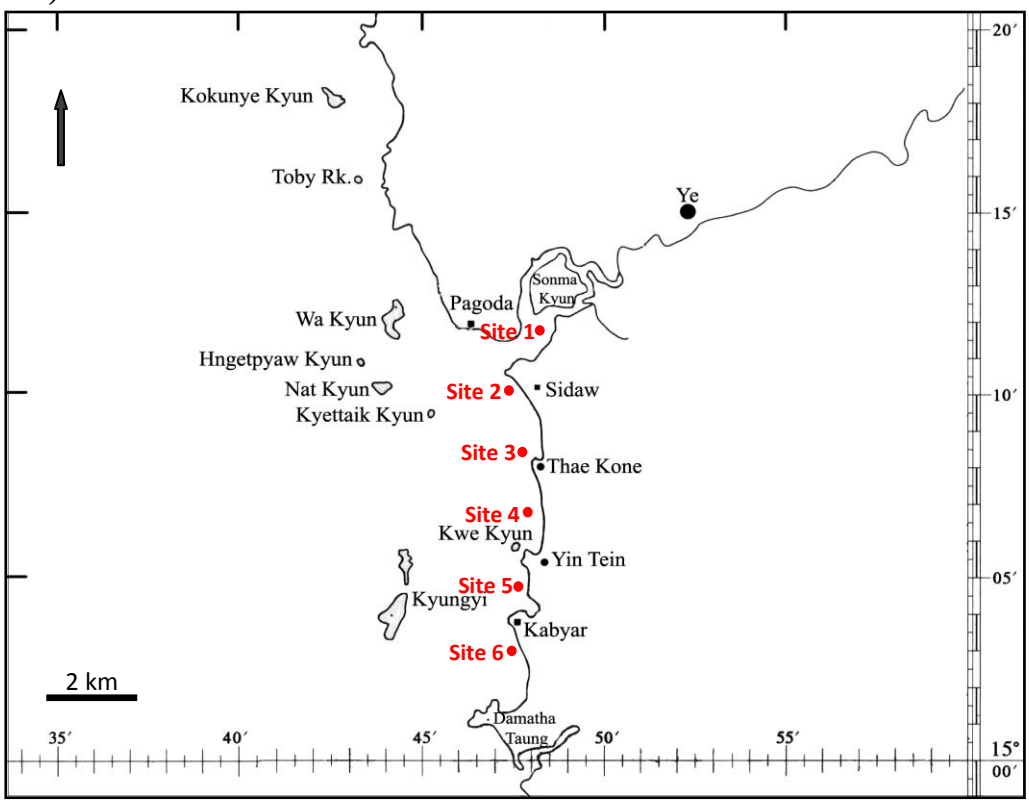


Figure 1 Map showing the sampling sites of brachionid rotifers in Ye River Mouth, southern Mon coastal area

Results and Discussion

Rotifer fauna of southern Mon coastal waters is rich in *Brachionus* species. The presence of *Brachionus plicatilis* species complex is a notable character of the rotifers present in Ye River Mouth waters. Backwaters of Sitaw describe the *Brachionus* species complex as a combination of *B. plicatilis*, *B. rotundiformis* and *B. murrayi*. But there is a slight variation in the description of this complex as *B. murrayi* is less envisaged in the complex with a majority of them being a combination of *B. plicatilis* and *B. rotundiformis*. Earlier study describes the *Brachionus* species complex in Andaman waters as *Brachionus* 'S' and 'L' and 'SS' forms as smaller *Brachionus*, larger *Brachionus* and tiny *Brachionus* (Madhu, Rema and Soundrarajan 2004). But the present study reveals that they are *Brachionus rotundiformis, B. murrayi* and *B. plicatilis* respectively in occurrence with the reports from Cochin backwaters (Anitha and Rani 2006). But the difference observed among southern Mon coastal water species is with respect to the lesser availability of *B. murrayi* among the various samples of the complex collected from southern Mon coastal waters. Other species of rotifers are present in very less number. The representatives of other species are specific for certain areas but *Brachionus* species complex consisting of *Brachionus rotundiformis* and *B. plicatilis* is common for most of the areas (Table 2). The rotifers identified during this study are *Brachionus angularis*, *B. calyciflorus*, *B. caudatus*, *B. diversicornis*, *B. donneri*, *B. falcatus*, *B. forficula*, *B. murrayi*, *B. plicatilis*, *B. quadridentatus*, *B. rotundiformis* and *B. urceolaris* (Table 1 and Fig. 2). The maximum density of rotifers was noticed from the sample collected from Kamawkin water (Site. 1), near Sonma Kyun (Table 2). The sample from that area consisted of *Brachionus rotundiformis* only. Various other rotifers are mainly identified from the samples collected from mangrove areas.

Table 1 Systematic of brachionid rotifer of Ye River Mouth in southern Mon coastal water

Phylum	**:**	Rotifera Cuvier, 1817
Class	**:**	Monogononta Plate, 1889
Order	**:**	Ploima Hudson & Gosse, 1886
Family	**:**	Brachionidae Ehrenberg, 1838
Genus	**:**	*Brachionus* Pallas, 1766
Species	1	*B. angularis* Gosse, 1851
	2	*B. calyciflorus* (Pallas, 1766)
	3	*B. caudatus* Barrois & Daday, 1894
	4	*B. diversicornis* (Daday, 1883)
	5	*B. donneri* Brehm, 1851
	6	*B. falcatus* (Zacharias, 1898)
	7	*B. forficula* Wierzejski, 1891
	8	*B. murrayi* (Fadeew, 1925)
	9	*B. plicatilis* (Müller, 1786)
	10	*B. quadridentatus* Hermann, 1783
	11	*B. rotundiformis* (Tschugunoff, 1921)
	12	*B. urceolaris* (Müller, 1773)

Artificial key to the species of *Brachionus* recorded from study areas

1.a. Two small anterior median spines …….. **2**

1.b. Four or six well developed anterior spines ……. **3**

2.a. Two divergent posterior spines present ……***Brachionus caudatus***

2.b. Posterior spines absent ……..***Brachionus angularis***

3.a. Anterior lorica margin with four spines ……. **4**

3.b. Anterior lorica margin with six spines ……... **6**

4.a. Lorica smooth, transparent, posterior lorica circular ……***Brachionus calyciflorus***

4.b. Posterior lorica with two spines …….. **5**

5.a. Length of posterior right spine longer than left spine ……***Brachionus diversicornis***

5.b. Length of posterior spines stout and inward curved ……..***Brachionus forficula***

6.a. Anterior spines length less equal …… **7**

6.b. Anterior spines length unequal ……... **8**

7.a. Posterior lorica without spines ……...***Brachionus plicatilis***

7.b. Posterior lorica with two large spines …….***Brachionus donneri***

8.a. Antero-intermediate spines longer antero-median and lateral ….***Brachionus falcatus***

8.b. Antero-intermediate spines shorter antero-median and lateral ……... **9**

9.a. Posterior lateral without spines ……***Brachionus urceolaris***

9.b. Posterior lateral with spines ……. **10**

10.a. Lorica barrel-shaped ……..***Brachionus quadridentatus***

10.a. Lorica vase shaped ……..... **11**

11.a. Lorica miniature more rounded and not sharply …….***Brachionus rotundiformis***

11.b. Lorica small ovoid to elliptical and not sharply ……...***Brachionus murrayi***

This work is an earnest attempt to add to the knowledge of the occurrence of rotifers in brackish water systems in Mon coastal water. Since, the identified rotifers show some new records for the locality, description of identified rotifers in southern Mon coastal water are given below in concurrence with the similar descriptions and their distribution and ecology.

Brachionus angularis Gosse, 1851

Ahlstrom, 1932. p 234; Ahlstrom, 1940. p 154-155, pl V: figs 1-13; Osorio Tafall, 1942. p 42, pl I, II: figs 1-19; Wang, 1961. p 70-71, pl V: figs 46a-c; Edmondson, 1966. p 451, fig 18.29c; Koste, 1978. p 91-92, pl 13: figs 1-7, 11-14, 16; Dang et al., 1980. p 56-57, fig 36; Battish, 1992. p 87-88, fig 72; Chung et al., 1992. p 45-46, pl II: fig 3; De Manuel, 2000. p 97, fig 3o; Dhanapathi, 2000. p 37, pl II: fig 2.

Synonym: *B. daitojimensis* Sudzuki, 1992; *B. donghuensis* Sudzuki & Huang, 1997; *B. lyratus yonaguniensis* Sudzuki, 1992; *B. minimus* Bartsch, 1877; *B. morondavaensis* Sudzuki, 1998; *B.*

papuanus Daday, 1897; *B. pseudokeikoa* Sudzuki, 1992; *B. pyriformis* Sudzuki & Huang, 1997; *B. syennensis* Schmarda, 1859; *B. testudo* Herberg, 1853.

Description: Lorica ovate, posterior rounded, surface smooth, compressed dorsal-ventral. Anterior dorsal margin with a pair of small spines in the centre of occipital, forming a deep broad U-shaped sinus. Posterior without spines. Foot opening rather large, U-shaped aperture, with a pair of protuberances in the ventral plate.

Measurements: Total length 110 μm, Lorica length 100 μm.

Distribution and Ecology: This species is a small rotifer, and is widely distributed in freshwater and estuarine water. Common in the Mekong River (Phan Doan Dang *et.al* 2015).

Brachionus calyciflorus (Pallas, 1766)

Hada, 1938. p173, fig I; Ahlstrom, 1940. p 150-152, pl III: figs 1-9, pl XX: figs 7-8; Osorio Tafall, 1942. p 45-46, pl VIII: figs 83, 86-90; Wang, 1961. p 71-72, pl V: figs 47a-c; Edmondson, 1966. p 451, fig 18.29b; Shirota, 1966. p 45, fig 637; Koste, 1978. p 86-87, fig 33b, pl 12: figs 1a-e; Dang et al., 1980. p 58-59, fig 38; Battish, 1992. p 79-80, figs 64 (1-3); Chung et al., 1992. p 44, pl III: fig 1; De Manuel, 2000. p 98, figs 3d, g; Dhanapathi, 2000. p 39, pl III: fig 1.

Synonym: *B. amphiceros* Ehrenberg, 1838; *B. dorcas* Gosse, 1851; *B. gillardi* Hauer, 1966; *B. pala* Ehrenberg, 1838; *B. pala anuraeiformis* Brehm, 1909.

Description: Lorica oval, flexible, smooth, slightly compressed dorsal-ventral, anterior dorsal margin with four broad based spines of similar size, triangular, median longer than lateral. Lateral posterior with a pair of large spines or absent. Anterior ventral margin slightly elevated, with a shallow V or U-shaped notches. Foot opening usually with two broad-based and stretched-like spines.

Measurements: Total length 300 μm; length of lorica 210 μm.

Distribution and Ecology: Estuarine water species, body rather large, distributed widely in ponds, lakes and rivers (De Manuel 2000). This species is widely used in ecological studies, eco-toxicological and aquaculture and is found in the Mekong River Basin.

Brachionus caudatus Barrois & Daday, 1894

Ahlstrom, 1940. p 155-156, pl VI: figs 1-11; Osorio Tafall, 1942. p 46-47, pl III, IV: figs 20-35, 39, 44-45; De Ridder, 1966. p 24, figs 4-5; Koste, 1978. p 94-95, pl 13, 14; Dang et al., 1980. p 60, fig 40; Battish, 1992. p 82, figs 67 (1-5); Dhanapathi, 2000. p 38, pl II: fig 4.

Synonym: *B. caudatus singapurensis* Sudzuki, 1989

Description: Lorica ovate, transparent, medial slightly wide, posterior narrowing. Lorica surface ornamentation, with four occipital spines, the lateral slightly longer than the medians, two median spines separated by a U-shaped sinus, posterior with a pair spines long, stout, slightly curved. Ventral plate with slightly convex between the base of posterior spine.

Measurements: Total length 150 μm; lorica length 113 μm.

Distribution and Ecology: This species is distributed in tropical and subtropical regions and is found in the Mekong River Basin (Phan Doan Dang *et.al* 2015).

Brachionus diversicornis (Daday, 1883)

Ahlstrom, 1940. p 161-162, pl IX: figs 6-7, pl XX: figs 3-5; Wang, 1961. p 77-78, pl VI: fig 54; Koste, 1978. p 68, pl 15: fig 5; Dang et al., 1980. p 59, fig 39; Battish, 1992. p 88, fig 73; Chung et al., 1992. p 48, pl III: fig 3; Dhanapathi, 2000. p 38, pl II: fig 7.

Synonym: *Schizocerca diversicornis* Daday, 1883

Description: Lorica tumbler-shaped, firm, elongate, half of anterior wider than posterior, slight compressed dorsal-ventral, with four occipital spines, laterals longer than medians. Posterior lorica with two spines unequal, right posterior spine longer than left spine.

Measurements: Total length 230 μm; lorica length 160 μm.

Distribution and Ecology: Estuarine water species, distributed widely in ponds, lakes and rivers, found in the Mekong River Basin (Phan Doan Dang *et.al* 2015).

Brachionus donneri Brehm, 1851

Voigt, 1956. pl 106, fig 12; Bērziņš, 1973. p 458, figs 12-14; Koste, 1978. p 70, fig 24.11, pl 14: fig 6; Sharma, 1983. figs 1-2; Phan et al., 2012. p 16, fig 3.

Synonym: Non.

Description: Lorica lateral view ovate or rounded, transparent, compressed dorsal-ventral. Anterior dorsal margin with six spines, equal, blunted. Anterior ventral margin with four spines, blunted, laterals longer medians spines, two medians spines separated by a U-shaped sinus. Lateral dorsal margin with two pairs spines, pair of anterior spines small, blunted, pairs of posterior large, pointed. Posterior margin with two large spines, mace-shaped, ending of rounded, two spines separated by a deep V-shaped, broad.

Measurements: Total length 110 μm - 150 μm.

Distribution and Ecology: Estuarine and freshwater species was found in the lower of the Mekong River (Vietnam), Tonle Sap (Cambodia). This species is also found in Sri Lanka, Panama, India (Sharma 1983 and Dhanapathy 2000).

Brachionus falcatus (Zacharias, 1898)

Ahlstrom, 1940. p 164-165, pl X: figs 1-3; Wang, 1961. p 77, pl VI: fig 53; Shirota, 1966. p 45, fig 638; Koste, 1978. p 83, pl 14: figs 2a-b; Dang et al., 1980. p 62-63, fig 43; Battish, 1992. p 84 – 85, figs 68 (1-2); Chung et al., 1992. p 49, p I, fig 7; De Manuel, 2000. p 98, fig 3i; Dhanapathi, 2000. p 41, pl VI: figs 1-3.

Synonym: *B. falcatus reductus* Koste & Shiel, 1987

Description: Lorica ovate, surface with stippled, compressed dorsal-ventral. Anterior dorsal margin with six spines, unequal, intermediates spines considerably longer than other spines, curved ventrally at the end. Lateral and median spines short, subequal. Posterior lorica margin with two spines very long, slightly curved inward. Foot opening between bases of posterior spines.

Measurements: Total length 170 μm; Lorica length 80 μm.

Distribution and Ecology: Estuarine and freshwater species, distributed in tropical and subtropical areas, found in the Mekong River (Phan Doan Dang *et.al* 2015).

Brachionus forficula Wierzejski, 1891

Ahlstrom, 1940. p 162-163, pl VII: fig 8, pl XX: figs 1-2; Wang, 1961. p 72-73, pl V: figs 48a-b; Koste, 1978. p 95-96, pl 14: fig 7; Dang et al., 1980. p 61-62, fig 42; Battish, 1992. p 85, figs 69 (1-3); Chung et al., 1992. p 47, pl II: fig 5; Altindağ et al., 2005. p 101, fig 2b.

Synonym: Non.

Description: Lorica firm, stippled, anterior dorsal margin with four occipital spines, lateral spines slightly longer than median spines, Posterior of lorica with a pair of spines stout, long, subequal, curved inward, base of spines wide, near their bases are knee-like swellings, tapering to points. Foot opening between the bases of posterior spines.

Measurements: Total length 180 μm, Lorica length 100 μm.

Distribution and Ecology: Estuarine and freshwater species, common in ponds, lakes, rivers, found in the Mekong River (Phan Doan Dang *et.al* 2015).

Brachionus murrayi (Fadeew, 1925)

Ahlstrom, 1940. p 175-176, pl XIX: figs 1-4; Osorio Tafall, 1942. p 59-60, pl XI, XII: figs 109, 110, 135; Wang, 1961. p 81-82, pl VI: fig 57; Edmondson, 1966. p 451, figs 18.30b, d; Shirota, 1966. p 45, fig 663; Koste, 1978. pl 8: figs 1, 2a, 3, 6; Dang et al., 1980. p 65-66, fig 47; Fernando et al., 1981. p 209, figs 4-5; Battish, 1992. p 88-89, fig 74; Chung et al., 1992. p 41, pl I: fig 2; Dhanapathi, 2000. p 43-44, pl IV: fig 5; Fontaneto et al., 2008. p 88, fig 55.

Synonym: Non.

Description: Lorica small ovoid to elliptical and not sharply separated into dorsal and ventral plates; occipital spines six in number which are narrow markedly above the broad, inflated base and end in thin acutely pointed tips or small based equilateral, equidistant triangular spines; the pectoral margin rigid and scalloped, shows considerable variations, irregularity of the four rounded projections; the occipital spines also show considerable variations especially in the relative length of intermediate spines; posterior spines absent; foot opening with a small sub square aperture ventrally.

Measurements: Total length 190 μm; Lorica width 120 μm.

Distribution and Ecology: This species is widespread in estuarine and freshwater and is found in the Mekong River (Wallace and Snell 2001, Wallace *et.al* 2006, Wallace and Smith 2013).

Brachionus plicatilis (Müller, 1786)

Ahlstrom, 1940. p 149-150, pl II: figs 1-9; Osorio Tafall, 1942. p 55-56, pl IV, VII: figs 38, 75-79; Edmondson, 1966. p 451, fig 18.29a; Shirota, 1966. p 45, figs 640-641; Koste, 1978. p 77, pl 9, fig 1a-e, pl 12, fig 7; Dang et al., 1980. p 60-61, fig 41; De Maeseneer, 1980. p 117, pl 1: fig 3; Battish, 1992. p 89-90, figs 75 (1-2); De Manuel, 2000. p 100, fig 3n; Dhanapathi, 2000. p 42, pl IV: fig 3; Fontaneto et al., 2008. p 88, fig 52.

Synonym: *B. hepatotomeus* Gosse, 1851; *B. mulleri* Ehrenberg, 1834

Description: Lorica oval, elongate, relatively soft, slightly compressed dorsal-ventral. Anterior dorsal margin with six spines, base of spines broad, saw-tooth spines, nearly equal. Anterior

ventral margin with four spines, very broad and blunted. Posterior lorica without spine. Foot opening posterior, aperture clearly U-shaped.

Measurements: Total length 160 μm; Lorica width 110 μm.

Distribution and Ecology: This species widely distributed in brackish or salt water (Rao and Chandra 1984). Only found in the Mekong River in Vietnam.

Brachionus quadridentatus Hermann, 1783

Ahlstrom, 1940. p 165-166, pl XI: fig 9, pl XII: figs 1-9; Osorio Tafall, 1942. p 57-58, pl IX: figs 91-94, 96-97; Edmondson, 1966. p 451, fig 18.29e; Shirota, 1966. p 45, fig 644; Koste, 1978. p 72-73, fig 32a, pl 11: figs 4a-b; Dang et al., 1980. p 64, fig 45; Battish, 1992. p 80-81, figs 65 (1-8); Chung et al., 1992. p 42, pl I: fig 5; De Manuel, 2000. p 101, figs 3a, c; Dhanapathi, 2000. p 42, pl V: figs 1-2.

Synonym: *B. ancylognathus* Schmarda, 1859; *B. brevispinus* Ehrenberg, 1832; *B. capsuliflorus* Pallas, 1766; *B. cluniorbicularis* Skorikov, 1894; *B. cluniorbicularis isigakiensis* Sudzuki, 1992; *B. rhenanus* Lauterborn, 1893

Description: Lorica barrel-shaped, width broader than length, surface stippled or pustulate. Anterior dorsal margin with six spines, medians a pair, spines longer than laterals and intermediates spines, curved outward. Anterior ventral margin undulate, somewhat elevated toward the centre, with a median sinus. Lateral of posterior lorica margin with two spines, somewhat unequal. Foot opening tubular shaped, with two sides stretched like spines.

Measurements: Total length 160 μm; Lorica width 95 μm.

Distribution and Ecology: Fresh and brackish water species, found in both northern and southern hemispheres, common in tropical and subtropical regions (Murray 1913, Segers *et.al* 1992 and Segers 2007). This species is the most common of genus *Brachionus* in the Mekong River Basin (Phan Doan Dang *et.al* 2015).

Brachionus rotundiformis (Tschugunoff, 1921)

Ahlstrom, 1932. p 248; Ahlstrom, 1940. p 174-175, pl XVIII: fig 6-9; Osorio Tafall, 1942. p 60-61, pl XI, XII: figs 111, 113, 134; Wang, 1961. p 80-81, pl VI: figs 56a-b; Shirota, 1966. p 45, fig 664; Koste, 1978. p 63-64, pl 6: figs 1-2, pl 7: figs 1-2;Dang et al., 1980. p 65, fig 46; Battish, 1992. p 90-91, figs 76 (1-2); Chung et al., 1992. p 49, pl III: fig 4; De Manuel, 2000. p 112; Fontaneto et al., 2008. p 88, fig 54.

Synonym: Non.

Description: Lorica miniature more rounded and not sharply split into dorsal and ventral plates; occipital margin with small based acutely sharp spines; pectoral margin four-lobed, lateral ones roughly triangular; foot opening with sub square aperture ventrally and fairly ovoid aperture dorsally.

Measurements: Total length 180 μm; Lorica width 100 μm.

Distribution and Ecology: Estuarine and freshwater species, common in ponds, lakes, rivers. Found in both northern and southern hemispheres, common in tropical and subtropical regions. It found in the Mekong Basin (Wallace and Snell 2001, Wallace *et.al* 2006, Wallace and Smith 2013).

Brachionus urceolaris (Müller, 1773)

Ahlstrom, 1940. p 171-172, pl XVI: figs 1-11; Osorio Tafall, 1942. p 59, pl IV: figs 36-37; Wang, 1961. p 75-76, pl V: fig 51; Koste, 1978. p 78-79, figs 30a, 31, pl 9: figs 3a-e; Dang et al., 1980. p 41, fig 44; De Manuel, 2000. p 101, fig 3m; Dhanapathi, 2000. p 43, pl. IV: fig 4.

Synonym: *Tubipora urceus* Linnaeus, 1758

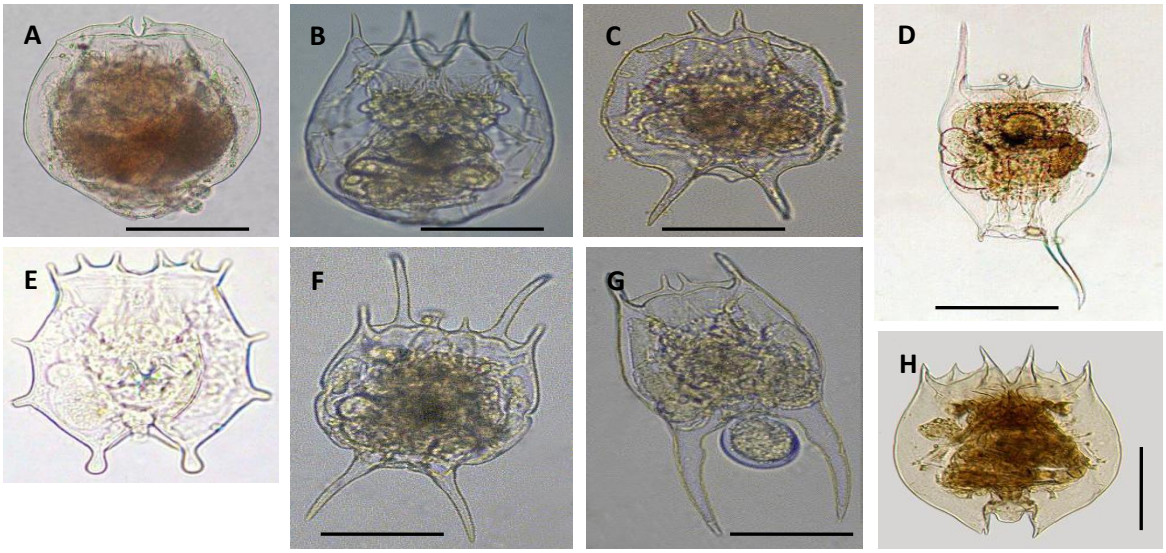
Description: Lorica ovate, wide in the middle lower part of lorica, posterior rounded, surface smooth. Anterior dorsal margin with six spines, medians longer than other spines, laterals longer than intermediates, two median spines separated by a V-shaped sinus. Anterior ventral margin undulate. Foot opening rather large, somewhat deflected to dorsal plate, aperture dorsally U-shaped and large oval aperture ventral plate.

Measurements: Total length 115 µm; Lorica width 75 µm.

Distribution and Ecology: Estuarine and freshwater, common in ponds, lakes and rivers with eutrophication. Widespread throughout Asia, found in the Mekong Basin (Wang 1961).

Table 2 Density and location specific availability of rotifers (+ indicates presence of the species)

Collection site	Mean Density (No/100 ml)	Brachionid rotifer											
		B. angularis	*B. calyciflorus*	*B. caudatus*	*B. diversicornis*	*B. donneri*	*B. falcatus*	*B. forficula*	*B. murrayi*	*B. plicatilis*	*B. quadridentatus*	*B. rotundiformis*	*B. urceolaris*
Site 1 (Kawmawkin, mangrove area)	98											+	
Site 2 (Sitaw, mangrove area)	46	+		+	+			+		+	+	+	
Site 3 (Thaekone, mangrove area)	32		+			+	+		+	+		+	+
Site 4 (Yintein, mangrove area)	44	+		+	+			+	+	+	+	+	+
Site 5 (Kabyarwa, mangrove area)	40	+	+			+	+		+	+	+	+	
Site 6 (Kabyarwa, mangrove area)	12			+	+		+	+	+	+	+	+	



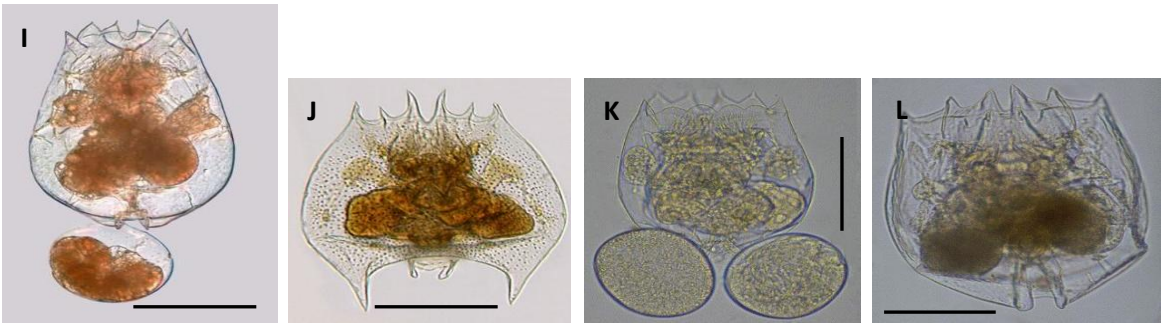


Figure 2 (A-L): Brachionid rotifer of Ye River Mouth in southern Mon coastal water. A) *Brachionus angularis* Gosse, 1851; B) *B. calyciflorus* (Pallas, 1766); C) *B. caudatus* Barrois & Daday, 1894; D) *B. diversicornis* (Daday, 1883); E) *B. donneri* Brehm, 1851; F) *B. falcatus* (Zacharias, 1898); G) *B. forficula* Wierzejski, 1891; H) *B. murrayi* (Fadeew, 1925); I) *B. plicatilis* (Müller, 1786); J) *B. quadridentatus* Hermann, 1783; K) *B. rotundiformis* (Tschugunoff, 1921); L) *B. urceolaris* (Müller, 1773). Scale bars = 100 μm.

Conclusion

Apart from the basic taxonomy interest in this effort, the notable absence of *Brachionus murrayi* among the *Brachionus* species complex in Mon coastal waters is a cue for further studies. It is imperative to investigate the potential of these complexes and other rotifers in determining the diversity and abundance of aquatic organisms in Mon coastal waters. Further, the taxonomic cues provided by the study calls upon intensive exploratory works to strengthen the database on rotifers of Mon coastal waters to promote the various ongoing captive seed production programmes of marine ornamental and food fishes.

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