

Nomenclatural consequences of some recent studies on *Brachionus plicatilis* (Rotifera, Brachionidae)

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Abstract

Recent studies on morphology, karyotype, genetics including allozyme constitution and reproductive behaviour of 'S-' and 'L-type' *B. plicatilis* showed that these types are best treated as different species. A reexamination of existing available names revealed *B. plicatilis* O. F. Müller, 1786 and *B. rotundiformis* Tschugunoff, 1921 as the correct names for the 'L-' and 'S-type', respectively.

Introduction

Soon after *B. plicatilis* started being used in aquaculture, it became apparent that groups of strains having different ecology and morphology occurred which were, for convenience, called 'S-' (small) and 'L-' (large) type' (Oogami, 1976). Recently, several studies were conducted to unravel the taxonomic relation between these two groups (Table 1). These led to the conclusion that they represent different species (Fu *et al.*, 1993; Rumengan *et al.*, 1991), and there are strong indications that even more biological species are involved (Gómez & Serra, 1995).

Given this circumstance, it is clear that a stable nomenclature, conform the International Code of Zoological Nomenclature, becomes necessary.

Discussion

For a correct and stable nomenclature, the oldest available name applying to a taxon should be used (Principle of Priority). A list of the names relevant to the case (Table 2) was compiled from Haring (1913), Ahlstrom (1940), Wiszniewski (1954), Kutikova (1970) and Koste (1978). Unfortunately, no type material is available for any of the names. On the other hand, morphological differences between the taxa do exist, and

it turned out possible to identify some of the published drawings.

The original description of *B. plicatilis* by O. F. Müller (1786; see Koste & Hollowday, 1993) corresponds well to the 'L-type'. Also *B. muelleri* Ehrenberg, 1834 and *B. hepatotomus* Gosse, 1834 can be identified as representing the 'L-type' (see also Hudson & Gosse, 1886; 1889). The description of *B. spatiosus* by Rousselet (1912) is inadequate to decide on its identity. The oldest recognisable description of the 'S-type' is that of *B. rotundiformis* Tschugunoff, 1921, this name therefore becoming the valid name for the taxon. The putative identity of some younger synonyms is as indicated in Table 2. Names of taxa that were inadequately described or whose description includes peculiar characters that prevent their assignment to either of the two species are listed as *nomina inquirendae*.

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Table 1. Evidence for species status of S and L type *B. plicatilis*

- 1) Morphology (Fu *et al.*, 1991a): Differences in size and dorsal anterior spine shape;
- 2) Isozyme patterns (Fu *et al.*, 1991b): Differences between 37 L and 30 S strains;
- 3) Differences in sexual and asexual reproduction (Hirayama & Rumengan, 1993);
- 4) Chromosome number (Rumengan *et al.*, 1991): $2n = 25$ in S, $2n = 22$ in L-type;
- 5) Cross-mating experiments:
 - no resting egg formation between S & L strains (Fu *et al.*, 1993)
 - male discrimination among S and L type (Rico-Martinez & Snell, 1995; Gómez & Serra, 1995)
 - differential binding of the mate recognition pheromone (MRP) to S and L males (Rico-Martinez & Snell, 1995)

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Table 2. Available names in the *B. plicatilis*-group

B. plicatilis O. F. Müller, 1786

- synonyms: *B. muelleri* Ehrenberg, 1834
B. hepatotomus Gosse, 1851
B. plicatilis asplanchnoides Charin, 1947
B. plicatilis longicornis Fadeev, 1925

B. rotundiformis Tschugunoff, 1921

- sub. *B. muelleri rotundiformis* Tschugunoff, 1921

B. baylyi Sudzuki & Timms, 1977

Species inquirendae:

- B. spatiosus* Rousselet, 1912
B. plicatilis decemcornis Fadeev, 1925
B. plicatilis ecornis Fadeev, 1925
B. plicatilis murrayi Fadeev, 1925
B. orientalis Rodewald, 1937
B. plicatilis colongulaciens Koste & Shiel, 1980
B. plicatilis estoniana Sudzuki, 1987

B. urceolaris var. *wernerii* Daday, 1903, listed as a synonym of *B. plicatilis* by Ahlstrom (1940) belongs to *B. urceolaris* rather than to *B. plicatilis*; the description of *B. plicatilis magadensis* Koste, listed in Koste & Shiel (1987) could not be traced.

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