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Gender of the genus *Botrylloides* Milne Edwards (1841) [Tunicata: Ascidiacea]

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Abstract

Milne Edwards (1841) introduced *Botrylloides* listing species with both feminine and neuter word endings. The International Code on Zoological Nomenclature, however, indicates that generic names ending *-oides* should be masculine unless the introducing author unambiguously indicated a different gender. The resulting uncertainty has caused prolonged confusion over the correct gender of *Botrylloides*. It is here affirmed that Milne Edwards did not provide a clear indication of gender and the general rule of the International Code applies: *Botrylloides* has masculine gender. The type species is *B. rotifer* Milne Edwards (its ending corrected from the feminine *B. rotifera*).

Key words: Invasive species, nomenclature, Styelidae, type species

It is a key principle of binomial nomenclature that, where the specific name is an adjective it must agree in gender with the generic name (International Commission on Zoological Nomenclature (ICZN), 1999). Inevitably, if there is confusion with regard to the gender of the generic name, there will be different word endings of specific names. Such is the case in the ascidian genus *Botrylloides* Milne Edwards (1841).

The World Register of Marine Species (WoRMS) lists 19 species of *Botrylloides* (Ascidiacea: Styelidae) that are considered valid (Sanamyan, 2014). Eight, such as *B. aureum*, *B. chevalense*, and *B. nigrum* have neuter endings, nine—including *B. violaceus*, altered in the list from Oka's (1927) *violaceum* with the annotation that the latter is an “incorrect original spelling”—have masculine endings. This annotation is not explained and appears rather odd when there are eight others listed with neuter gender.

There is a long history of confusion. For example, Ritter & Forsyth (1917) introduced *Botrylloides diegensis* (masculine) but Oka (1927), a decade later, treated the genus as neuter, as did Van Name (1945), including *B. aureum* Sars, *B. nigrum* Herdman, *B. diegensis* (altering the gender from Ritter & Forsyth), and *B. magnum* (Ritter); so also did Tokioka (1953). More recently, Kott (1985) took the same view, with *B. magnicoecum* Hartmeyer, *B. perspicuum* Herdman, *B. violaceum* Oka, though she later (Kott, 1998) treated the genus as masculine, with *B. perspicuus* Herdman (from *B. perspicuum*) and *B. violaceus* Oka (from *B. violaceum*). In recent years, Japanese authors (Saito *et al.*, 1981; Saito & Watanabe, 1985; Tokioka, 1970) also have used the masculine form.

Before examining how this confusion has arisen, and resolving the issue, it is necessary to explain why the relatively small genus *Botrylloides* is important. Though the species are rather few, they are widespread, occurring in all the oceans from temperate waters to the tropics (e.g., Berrill, 1950; Kott, 1985; Van Name, 1945). More importantly, the genus contains invasive species that have been introduced to new areas, usually into marinas, from which they are spreading into the natural environment and competing for space with native species. The two most widely reported invasive species are *B. violaceus* and *B. diegensis* (e.g., Arenas *et al.*, 2006; Bishop *et al.*, 2015; Bock *et al.*, 2011; Minchin, 2007; and numerous semi-technical internet articles). Clearly, the names need to be correctly spelt.

Botrylloides was introduced by H. Milne Edwards (1841) with four included species: *B. rotifera*, *B. rubrum* and *B. albicans*, all new (pp. 85–88), and *B. leachii* (Savigny) (p. 88). Additionally, *Botrylloides violaceus* was used in a plate caption (p. 108). This, however, was a lapse for *Botryllus violaceus* which, in the text, he attributed to *Botryllus* “proprement dits” (p.89), but still must be taken into account. The first specific name, *rotifera*, is the feminine of a properly compounded Latin adjective *rotifer*, *-fera*, *-ferum*; derived from *rota*, a wheel, and *fero*, *ferre*, to carry. The second name, *rubrum*, is clearly neuter. *Botrylloides violaceus*, whether a slip or not, implies a masculine gender.

The contradiction of gender between the included species was first noted by Giard (1872): “M Edwards en créant le