

**The correct classification of *Odontella rhombus* f. *trigona* (*Biddulphiaceae*, *Mediophyceae*), observed in the monitoring of European coastal waters**

Wolf-Henning Kusber, *Botanischer Garten Berlin, Freie Universität Berlin, Königin-Luise-Str. 6-8, D-14195 Berlin, Germany* (correspondence: [w.h.kusber@bo.berlin](mailto:w.h.kusber@bo.berlin))

Jonas Zimmermann, *Botanischer Garten Berlin, Freie Universität Berlin, Königin-Luise-Str. 6-8, D-14195 Berlin, Germany*

During marine coastal monitoring in Germany in accordance with the Marine Strategy Framework Directive (MSFD) and the Water Framework Directive (WFD) of the European Union the following related names have been reported: *Biddulphia rhombus* (Ehrenberg) W.Smith, *Biddulphia rhombus* var. *trigona* Cleve ex Van Heurck, *Odontella rhombus* (Ehrenberg) Kützing, *Odontella rhombus* f. *trigona* (Cleve ex Van Heurck) R.Ross, and *Zygoceros rhombus* Ehrenberg. These five names represent three taxa. However, it appears that only two taxa have been observed currently, as *Odontella rhombus* is only known from the fossil record.

The current checklists and identification books for the North Sea and the Baltic accept *Odontella rhombus* and *Odontella rhombus* f. *trigona* (Hällfors 2004: 65, Hoppenrath & al. 2009: 93, 94, 96, figs 40 d-j, Kraberg & al. 2010: 96, figs a-c). Comprehensive phylogenetic studies by Ashworth & al. (2013) suggests that *Odontella* C.Agardh as widely understood is not monophyletic. The nomenclatural type of *Odontella*, *Odontella aurita* (Lyngbye) C.Agardh, is nested in a different branch than the taxa here discussed. The clade of *Odontella rhomboides* R.Jahn & Kusber includes the holotype of the genus *Zygoceros* Ehrenberg (Ehrenberg 1839: 156, Jahn & Kusber 2004). Lavigne & al. (2015) accepted *Zygoceros* taxonomically and Guiry & Guiry (2023) follow this taxonomic treatment. It should be mentioned that disregarding the acceptance of *Trieres* Ashworth & E.C.Theriot (Ashworth & al. 2013, Sims & al. 2018), synonym *Microtheca* Ehrenberg (Williams & al. 2017, Kusber & al. 2018, Andersen 2020, Wilson 2022), all clades around *Odontella sensu lato* lack a complete monographic treatment (see Sims & al. 2018).

Since many recombinations and replacement names have been introduced in the past, the nomenclatural history is not entirely clear. Even though Lavigne & al. (2015) published a thorough taxonomic treatment, we here refer to the names related to the taxa under discussion. The aim of the present note is to propose correct names for the rhomboid and trigonal frustules, observed in recent coastal monitoring. According to the data and findings in Ashworth & al. (2013), both belong to the same subclade that include the type of *Zygoceros*, *Zygoceros rhombus* Ehrenberg (see Jahn & Kusber 2004). The genetic differences of the clade shown by the data in the INSDC nucleotide repositories (International Nucleotide Sequence Database Collaboration, <https://www.insdc.org/>) in delineations from the other clades also supports this decision. At a taxon level, the differences in the molecular data are not sufficiently decisive; therefore, a classification on species rank cannot validly be justified. We therefore propose here the following treatment.

*Zygoceros rhombus* Ehrenberg [var. *rhombus*] in *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königlich Preussischen Akademie der Wissenschaften zu Berlin* 1839: 156 1839, emend. Ehrenberg (1840: 160, pl. IV [4]: fig. XI [11]).

Homotypic synonyms: *Biddulphia rhombus* (Ehrenberg) W.Smith (in Roper), *Transactions of the Microscopical Society of London, New Series* 2: 76. 1854 (also Smith 1856: 56), *Odontella rhomboides* R.Jahn & Kusber in *Willdenowia* 34: 584. 2004 [non *Odontella rhombus* (Ehrenberg) Kützing 1849 ≡ *Denticella rhombus* Ehrenberg].

***Zygoceros rhombus* var. *trigonus*** (Cleve ex Van Heurck) Kusber & J.Zimmermann, comb. nov.  
Registration: <http://phycobank.org/103767>

Basionym: *Biddulphia rhombus* var. *trigona* Cleve ex Van Heurck, *Synopsis de Diatomées de Belgique*: pl. XCIX [99]: fig. 2. 1882, emend. Cleve (in Van Heurck 1885: 205).

Synonyms: *Odontella rhombus* f. *trigona* (Cleve) R.Ross (in Hartley 1986: 609), *Biddulphia rhombus* f. *trigona* Hustedt, *Rabenhorst's Kryptogamen Flora von Deutschland, Österreich und der Schweiz* 7(1) 843, fig. 498, 1930, *nom. illeg.*, non Brun (Brun & al. 1890: 22, pl. IV [4]: fig. 3).

Excluded taxon from recent monitoring: *Zygoceros ehrenbergii* Sar (in Lavigne & al. 2016) ≡ *Odontella rhombus* (Ehrenberg) Kützing, *Species Algarum*: 136, 1849 ≡ *Denticella rhombus* Ehrenberg in *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königlich Preußischen Akademie der Wissenschaften zu Berlin*. 1844: 79, 1844.

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