
***Pulchellophycus* gen. nov.: a validation of “*Pulchella*” Krammer (Naviculaceae, Bacillariophyta)**

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Article 20.2 of the ICN (Shenzhen Code; Turland *et al.* 2018: 20) states that “The name of a genus may not coincide with a Latin technical term in use in morphology at the time of publication unless it was published before 1 January 1912”. Examples of potentially invalid generic names represented by technical terms include those derived from morphological Latin nouns (e.g., *caulis*) and adjectives (e.g., *lanceolatus*, see Art. 20, Examples 4, 6).

In developing content for the web resource *Diatoms of North America* (<https://diatoms.org>), a diatom genus, *Pulchella* Krammer (2000: 204, 240), *inval.*, was identified that is in violation of Art. 20.2. Originally intended as a name for a new naviculoid diatom genus segregated from *Pinnularia* Ehrenberg (Ehrenberg 1843: 45), “*Pulchella*” is based on the Latin *pulchellus* (adj. A), defined by Stearn (1992: 476) as “beautiful and little”. As such, the generic designation *Pulchella* Krammer, *inval.*, and all species designated within the genus are invalid, necessitating that a new replacement genus name for “*Pulchella*” Krammer is required, and that all species within the genus also require new valid names or combinations.

***Pulchellophycus* Edlund & M.J.Wynne, gen. nov.**

Replaced designation: “*Pulchella*” Krammer, *inval. Diatoms of Europe* Vol. 1: 204, 240; 2000.

Description: Frustules naviculoid, symmetrical in apical, transapical, and perivalvar axes, rarely dorsiventral. Valves linear to linear-lanceolate, ends rounded to rostrate. Intercalary bands narrow, septae absent. Valve face flat. The valve face-mantle junction is sharply bent, valve mantle shallow. Submarginal rows of large, round to apically elongated foramina run along both external sides of the valve face, about 10-13/10 μm . In the valve interior, submarginal rows of foramina are aligned similarly to external foramen but separated by marginal costae. Foramen open into submarginal longitudinal alveolae of about 1/3 to 1/5 the breadth of the valve. Axial area narrow to broad, if narrow central valve face covered in indistinct, uniseriate parallel striae that are often interrupted and composed of irregular transapically elongate areolae. Internal openings of striae similarly irregular and interrupted. Central area continuous with axial area or small and rhombic in striated valves. Raphe branches filiform, proximal ends closely spaced and unilaterally deflected opposite to terminal ends that internally terminate in small helictoglossae. (Modified from Krammer 2000: 204-205 and emended from Kociolek *et al.* 2014: 35.)

Diagnosis: In contrast to *Pulchellophycus*, *Biremis* D.G.Mann & E.J.Cox (in Round *et al.* 1990: 664) has an arched valve face, a rounded valve face-mantle junction and submarginal alveolate striae that are each internally occluded by a large poroid cribrum located at the valve face-mantle junction. *Pulchellophycus* is ecologically restricted to low-productivity fresh waters (Krasske 1939, 1943, Kulikovskiy *et al.* 2012., Kociolek *et al.* 2014), whereas *Biremis* taxa are distributed in fresh to brackish waters (Round *et al.* 1990, Edlund *et al.* 2001).
Registration: <http://phycobank.org/101420>

Type: *Pulchellophycus kriegarianus* (Krasske) Edlund & M.J.Wynne *comb. nov.* Basionym: *Pinnularia kriegariana* Krasske, *Bericht der Deutschen Botanischen Gesellschaft* 61: 86, fig. 17. 1943.

Lectotype: KASSEL C III 98 (designated by Lange-Bertalot *et al.* 1996, depicted as their pl. 42: fig. 11).

Homotypic synonym: *Biremis kriegneriana* (Krasske) Lange-Bertalot in Lange-Bertalot *et al. Iconographia Diatomologica* 3: 166-167, pl. 42: figs 11, 12. 1996. Invalid designation: “*Pulchella kriegneriana*” Krammer, *inval.*, *Diatoms of Europe* Vol. 1: 205, pl. 214: figs 1-8. Registration: <http://phycobank.org/101423>

Note: generic names ending in *-phycus* (φύκος, phykos), which should be treated as neuter, are considered masculine in accordance with ICN Art. 62.2(c).

Additional taxa assigned to the genus *Pulchellophycus*:

Pulchellophycus baicalensis Edlund & M.J.Wynne, *sp. nov.* Replaced designation: “*Pulchella baicalensis*” Kulikovskiy, Lange-Bertalot & Metzeltin, *inval.*, in Kulikovskiy *et al. Iconographia Diatomologica* 23: 236, pl. 88: 24, 25. 2012. Holotype: **IBIW** 15650m (depicted as pl. 88: fig. 24 in Kulikovskiy *et al.* 2012), Isotype: **SZCZ** 15650a. Description and figures: *Iconographia Diatomologica* 23: 236, pl. 88: 24, 25. 2012. Registration: <http://phycobank.org/101424>

Pulchellophycus obsitus (Hustedt) Edlund & M.J.Wynne *comb. nov.* Basionym: *Navicula obsita* Hustedt *Archiv für Hydrobiologie*, 40(4): 921, pl. 41: fig. 2. 1945. Registration: <http://phycobank.org/101425>
Lectotype: **BRM** N5/78 [cited as holotype but technically designated by Simonsen (1987a: 332) and depicted in Simonsen (1987b: pl. 508: fig. 32-34)].
“*Pulchella obsita*” Lange-Bertalot, *inval.* in Werum & Lange-Bertalot *Iconographia Diatomologica* 13: 173, pl. 79: figs 5-9. 2004.

Pulchellophycus porcatus Edlund & M.J.Wynne, *sp. nov.* Replaced designation: “*Pulchella porcata*” Kociolek, *inval.* (as ‘*porcatus*’) in Kociolek *et al. Bibliotheca Diatomologica* 61: 35-36, pl. 44: figs. 14-19; pl. 45: figs 1-3. 2014.
Holotype: **Collection J.P. Kociolek** JPK#2400, slide 216097 (depicted as pl. 44: fig. 16 in Kociolek *et al.* 2014).
Description and figures: *Bibliotheca Diatomologica* 61: 35-36, pl. 44: figs 14-19; pl. 45: figs 1-3. 2014.
Registration: <http://phycobank.org/101427>

Pulchellophycus schwabei (Krasske) Edlund & M.J.Wynne *comb. nov.* Basionym: *Pinnularia schwabei* Krasske *Archiv für Hydrobiologie und Planktonkunde, Stuttgart* 35(3): 398, pl. 11: figs 19-21. 1939. Registration: <http://phycobank.org/101429>
Lectotype: **KASSEL** D III 163 (designated in Lange-Bertalot *et al.* 1996, depicted as their pl. 42: figs 13-18)
“*Pulchella schwabei*” Krammer, *inval.* *Diatoms of Europe* Vol. 1: 205, pl. 214: figs 9-17. 2000. Homotypic synonym: *Biremis schwabei* (Krasske) Lange-Bertalot in Lange-Bertalot *et al. Iconographia Diatomologica* 3: 169-170. 1996.

Pulchellophycus sergejii Edlund & M.J.Wynne, *sp. nov.* Replaced designation: “*Pulchella sergejii*” Kulikovskiy, Lange-Bertalot & Metzeltin, *inval.* in Kulikovskiy *et al. Iconographia Diatomologica* 23: 237-238, pl. 88: 26-37. 2012.
Holotype: **IBIW** 15651m (depicted as pl. 88: fig. 26 in Kulikovskiy *et al.* 2012), Isotype: **SZCZ** 15651a.
Description and figures: *Iconographia Diatomologica* 23: 237-238, pl. 88: 26-37. 2012.
Registration: <http://phycobank.org/101431>

Pulchellophycus skvortzowii Edlund & M.J.Wynne, *sp. nov.* Replaced designation: “*Pulchella skvortzowii*” Metzeltin, Kulikovskiy & Lange-Bertalot, *inval.* in Kulikovskiy *et al. Iconographia Diatomologica* 23: 238, pl. 88: 38-40. 2012.
Holotype: **FR** B2 (depicted as pl. 88: fig. 38 in Kulikovskiy *et al.* 2012).
Description and figures: *Iconographia Diatomologica* 23: 238, pl. 88: 38-40. 2012.
Registration: <http://phycobank.org/101432>

Pulchellophycus undulatus (Foged) Edlund & M.J.Wynne *comb. et stat. nov.* Basionym:

Pinnularia kriegeriana f. *undulata* Foged *Bibliotheca Phycologica* 15: 98, pl. XXII [22]: fig. 11. 1974.

Holotype: **C** ex coll. N. Foged, Odense 387/1954.

Description and figures: *Bibliotheca Phycologica* 15: 98, pl. XXII [22]: fig. 11. 1974.

Registration: <http://phycobank.org/101433>

A taxon described as a species of the invalid genus designation “*Pulchella*” clearly belongs in *Biremis* D.G.Mann & E.J.Cox (in Round *et al.* 1990: 664) and not in *Pulchellophycus*. As the original description in “*Pulchella*” was not valid, we here validate the name as a species of *Biremis*.

Biremis minutissima Edlund & M.J.Wynne, *sp. nov.* Replaced designation: “*Pulchella*

minutissima” E.Reichardt, *inval. Berichte der Bayerischen Botanischen Gesellschaft* 76: 50, figs 52-59. 2006.

Holotype: **B** S2525-T02 ex coll. E.Reichardt (marked valve depicted as fig. 56 in Reichardt 2006), Isotype **BRM** Zu 6/15.

Description and figures: *Berichte der Bayerischen Botanischen Gesellschaft* 76: 50, figs 52-59. 2006.

Registration: <http://phycobank.org/101435>

Comments: Reichardt (2006) provides excellent scanning electron micrographs of the marginal striae/alveoli structure that conforms with the defining morphological character of the genus *Biremis*, namely, alveolate striae that are each internally occluded by a large poroid cribrum located at the valve face-mantle junction, and with striae opening externally by two rows of large round to transapically elongate foramina, one longitudinal row of foramina on the valve face and one on the valve mantle (Edlund *et al.* 2001). The valve face-mantle junction of *B. minutissima* is also broadly rounded in contrast to the sharp transition in *Pulchellophycus* taxa.

We thank Wolf-Henning Kusber for his constructive review. The *Diatoms of North America* web resource is supported by the US Environmental Protection Agency, the USGS, and the Institute of Arctic and Alpine Research at University of Colorado Boulder.

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