

**Assessment of names in the genera *Iconella*, *Surirella* and *Suriraya* (Bacillariophyceae).**

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For more than 150 years, *Cymatopleura* W.Smith and *Surirella* Turpin have been recognised as different genera on the basis of morphological characters. In the light of molecular phylogeny, *Surirella* in its traditional circumscription has turned out to be polyphyletic. Species of a monophyletic clade of robustoid ‘*Surirella*’ taxa possessing a raised raphe canal and alar canals with fenestral openings occluded by fenestral bars plus internally rimmed pores were combined with the nearly forgotten genus *Iconella* Jurilj (1949) by Ruck & al. (2016a, b) whereas *Cymatopleura* species turned out to be nested within the remaining clade of *Surirella* (Ruck & al. 2016a). Subsequently, some novelties reflected these phylogenetic findings (e.g., Ruck & al. 2016b, Jahn & al. 2017), some of which were noted by databases.

In Jahn & al. (2017: p. 91) ‘*Iconella margaritifera* (Hust.) Cocquyt & R. Jahn, comb. nov.’ was introduced as a new combination for *Surirella margaritifera* Hustedt, *nom. illeg.* under *Iconella*. *Surirella margaritifera* Hustedt had been invalidly published by Hustedt (1922) and was validated by Hustedt in Huber-Pestalozzi (1942). However, this epithet had already been introduced by Dujardin (1842), thus Hustedt’s validated name remained illegitimate until a replacement name under *Surirella* was chosen in Cocquyt & al. (2007). Because Hustedt’s name is illegitimate it cannot be chosen as a basionym for a new combination. Therefore, a legitimate name is here provided with the first legitimate name of Hustedt’s taxon as its basionym.

Iconella submargaritifera (Cocquyt & Kusber) Cocquyt & R. Jahn, *comb. nov.*

Basionym: *Surirella submargaritifera* Cocquyt & Kusber in Kusber & Jahn (Eds.): *Proceedings of the 1st Central European Diatom Meeting* [Berlin-Dahlem 2007]: 27, 2007.

Lectotype (designated by Simonsen 1987: 82, for *Surirella margaritifera* Hustedt). **BRM X2/85** Lake Tanganyika “Tanganyika See. 6”.

Registration: <http://phycobank.org/102536>.

≡ *Iconella margaritifera* Cocquyt & R. Jahn in Jahn & al., *PhytoKeys* 82: 91, 03 Jul 2017, *nom. illeg.*

≡ *Surirella margaritifera* Hustedt in Huber-Pestalozzi, *Phytoplankt. Süßwass.* vol. 2 (2), 501, fig. 607. 1942, *nom. illeg., non* Dujardin, *Nouveau manuel complet de l'observateur au microscope*: 43, pl. 30: fig. 17, 1842.

Surirella afrocalcarata Cocquyt & R. Jahn was established as a replacement name for *Cymatopleura calcarata* Hustedt “because of *Suriraya calcarata* Pfitzer in *Bot. Abh. Morphol. Physiol.* 2: 107. 1871” (Jahn & al. 2017). Index Nominum Algarum (2020) and AlgaeBase (Guiry & Guiry 2020) evaluated the name *Surirella afrocalcarata* as “illegitimate: unwarranted change of epithet [perceived priority for *Suriraya calcarata* Pfitzer 1871]”.

In presenting the main argument for the change of name, Jahn & al. (2017) failed to explain fully why a replacement name was necessary.



To find the correct name of *Cymatopleura calcarata* Hustedt under *Surirella*, it is necessary to analyse the name *Suriraya* Pfitzer 1871 and its relationship to *Surirella* Turpin 1828.

In Pfitzer (1871: 107), *Suriraya* had been introduced as follows: ‘*Suriraya* Turp.¹’, “(1) *Mit Unrecht schreibt man den Namen dieser Gattung überall Surirella. Der Entdecker Turpin (a. a. O. S. 362) benannte sie nach einem Arzte Suriray in Hâvre, und wir müssen daher, wie von Bray Braya, von Berkeley Berkeleyya, so auch hier Suriray Suriraya ableiten.*” [Everywhere the name of the genus is wrongly written as *Surirella*. The describer Turpin named it after the doctor Suriray in Hâvre, and therefore we should ... derive *Suriraya* from Suriray]. Pfitzer attributed *Suriraya* definitely to Turpin 1828. Pfitzer’s intention was not to find a replacement name in the modern sense but to correct Turpin’s name. In Pfitzer’s (1871) view, *Suriraya* Turpin must have been just an orthographic correction of *Surirella* Turpin. In the same work, Pfitzer (1871) described the species *Suriraya calcarata* Pfitzer. De Toni (1892: 567, 575) adopted Pfitzer’s opinion and published all *Surirella* species under *Suriraya* Turpin, 1828.

By contrast, in 20th-century compilations of names, *Suriraya calcarata* and all other *Suriraya* species were subsumed under *Surirella* (e.g., Mills 1934: 1570, VanLandingham 1978: 3810). However, the treatment of *Suriraya* as an orthographic variant by parts of the taxonomic community of diatomists is not in conformity with the *International Code of Nomenclature for algae, fungi, and plants* (ICN, Turland & al. 2018: Art. 60, Art. 60 Ex. 1). Art. 60 reads: “The original spelling of a name or epithet is to be retained, except for the correction of typographical or orthographical errors...”. An alteration from *Surirella* to *Suriraya* cannot be subsumed under “various spelling” in the sense of Turland & al. (2018, 61.2., Ex. 1, Ex.2.).

As treated by R. Ross in the *Index Nominum Genericorum* (ING, Farr & al. 1979: 1705), *Surirella* Turpin and *Suriraya* Pfitzer are different names. Both names are homotypic, the latter is a superfluous hence illegitimate name (Turland & al. 2018: Art. 60.1). The entry in Farr & al. (1979: 1705) reads: “*Surirella* Turpin, Mém. Mus. Hist. Nat. 16: 363. 1828” and “*Suriraya* Pfitzer, Bot. Abh. Morphol. Physiol. 2: 107. 1871. ≡ *Surirella* Turpin 1828”. Consequently, an epithet in *Suriraya* cannot be used in *Surirella* without a nomenclatural act. Most cases of such novelties were indexed by Paul Silva in *Index Nominum Algarum* but the first appearance of the name *Surirella calcarata* in Flögel (1884) was not. In publishing the name *Surirella calcarata* and giving the place of valid publication by Pfitzer, Flögel (1884) recombined *Suriraya calcarata* with *Surirella*. Therefore, the treatment of *Surirella afrocalcarata* should read as follows:

Surirella afrocalcarata Cocquyt & R.Jahn in Jahn & al., *PhytoKeys* 82: 98, 3 Jul 2017.

≡ *Cymatopleura calcarata* Hustedt in Huber-Pestalozzi, *Phytoplankt. Süßwass.* vol. 2 (2), 480, fig. 579, 1942 [non *Surirella calcarata* (Pfitzer) Flögel in *Journal of the Royal Microscopical Society London series 2* 4: 520, 1884 ≡ *Suriraya calcarata* Pfitzer in *Botanische Abhandlungen aus dem Gebiet der Morphologie und Physiologie* 2.: 101, pl. 1: figs 8-10, pl. 5: figs 4-7, 1871] Lectotype: [of *Cymatopleura calcarata*, designated by Simonsen 1987: 80]. **BRM** Xa/20 Lake Tanganyika “Tanganika See”.

Registration: <http://phycobank.org/100091>. A dated editorial notice has been added to the respective registration in PhycoBank (2020).

Lauterborn’s (1896) comprehensive work on cell division in algae was based mainly on Pfitzer’s (1871) ‘*Surirella calcarata*. Lauterborn (1896) mentioned that *Surirella calcarata* could be a synonym of *Surirella capronii* Brébisson ex Kitton. Later, Hustedt (1909) believed Pfitzer’s species to be a variety of *Surirella capronii*. *Surirella capronii* was recombined with *Iconella* in Ruck & al. (2016b). It is clear from Pfitzer’s drawings that he worked with an *Iconella* (raised raphe canal and



alar canals with fenestral openings occluded by fenestral bars) but he focussed on the general cell architecture, therefore a taxonomic evaluation of Pfitzer's taxon is not yet possible.

The authors wish to thank Dr Michael D. Guiry as well as the reviewers. The comments by Dr John McNeill were most helpful in revising the manuscript.

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