

Transfer of *Cyclotella michiganiana* Skvortzov to the genus *Pantocsekiella* K.T.Kiss & Ács (Stephanodiscaceae, Bacillariophyta)

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Boris Vasil'evich Skvortzov (1896, Warsaw, Poland–1980, São Paulo, Brazil) was a prolific publisher of new taxa, particularly of diatoms of which he described more than 1500 from over 50 genera (Williams & al. 2016: 313). The latter authors have highlighted the variation in how he spelled his name and recommended the consistent use of the spelling “Skvortzov”.

Cyclotella michiganiana Skvortzov (1937: 658, pl. 1: figs 3, 10, 18) was described from material “... obtained by filtering Lake Michigan water from the city mains of Chicago in January, 1936”. Before and since then taxonomists have been separating taxa from *Cyclotella sensu lato* based on unique morphological characters, thus creating several new genera. With advances in molecular techniques it became clear that *Cyclotella*-like diatoms comprised several independent monophyletic genera (e.g. Alverson & al. 2007), some of which are not closely related. Based on the position of the rimoportula (disassociated from the ring of marginal fultoportulae), Nakov & al. (2015) reinstated the genus *Lindavia* (Schütt) De Toni & Forti and proposed the combination *Lindavia michiganiana* (Skvortzov) T.Nakov & al. for *Cyclotella michiganiana* Skvortzov. Ács & al. (2016) separated all taxa lacking areolae in the central area from *Lindavia sensu* Nakov & al. thereby creating the genus *Pantocsekiella* K.T.Kiss & Ács. When transferring taxa from *Lindavia* to *Pantocsekiella*, *L. michiganiana* was omitted. However, it has all characteristics of the genus *Pantocsekiella* and can be distinguished from *Lindavia* by the lack of areolae in the central area (Figs 1–16). As a further confirmation, a monoclonal strain (QT4) was established and investigated following the methodology of Kistenich (2014). The generic placement is also confirmed by molecular data (Fig. 17). A new combination is therefore necessary, as follows.

Pantocsekiella michiganiana (Skvortzov) K.Schultz & M.Dreßler, *comb. nov.*

Basionym: *Cyclotella michiganiana* Skvortzov, *Diatoms from Lake Michigan. I. American Midland Naturalist* 18(4): 658, pl. 1: figs 3, 10, 18, 1937.

Homotypic synonym: *Lindavia michiganiana* (Skvortzov) T.Nakov & al. (2015: 256).

Type: Physical type material has not been located to date. Skvortzov's illustrations seem too poor to be suitable for designation as lectotype and neotypification may be necessary should no material be found.

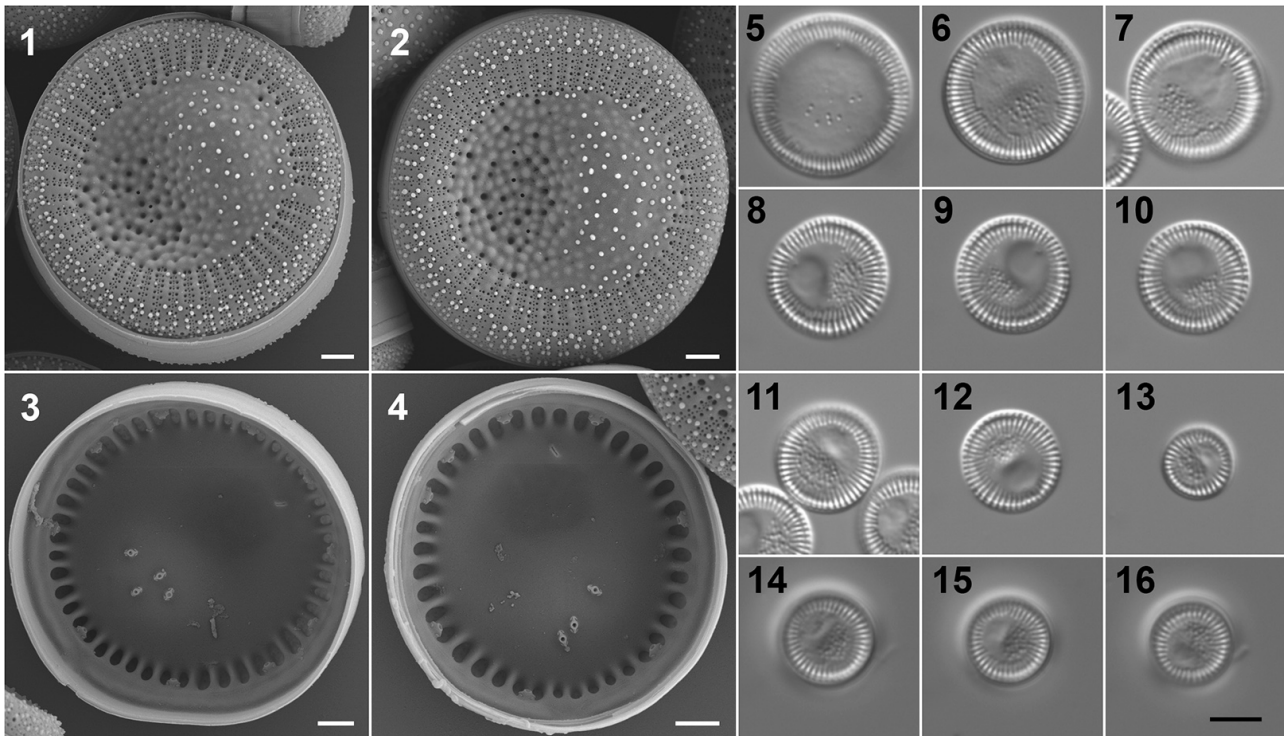
Description (based on the population of Grand lac Saint-François in Québec, Canada): Valve circular, 6.2–16.3 µm in diameter. The central area is circular to ellipsoid and distinctly tangentially undulated. The depressed part of the central area bears two to several central fultoportulae. Marginal area striated with 14–17 Striae in 10 µm circumference. On average, one marginal fultoportulae on every fourth or fifth costa (3–4 in 10 µm circumference).

Notes: Morphologically, the most similar species are: *Pantocsekiella schumannii* (Grunow) K.T.Kiss & Ács differing in a larger maximal diameter (up to 40 µm), a smoother surface of the central area and a higher density of marginal fultoportulae (one MFP on every second to third

costa), following the description of Houk & al. (2010). But also some taxa of the *Pantocsekiella comensis* group with a tangentially undulated central area, such as *Pantocsekiella pseudocomensis* (W.Scheffler) K.T.Kiss & Ács, which have only one to two central fultoportulae according to Houk & al. (2010).

This work was funded by the State Postgraduate Scholarship Program of the State of Mecklenburg-Vorpommern (Germany). We would like to thank David M. Williams and Michael D. Guiry for their helpful comments.

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Figs 1–16. *Pantocsekiella michiganiana* from Grand lac Saint-François, Québec. **Figs 1–4.** SEM images of the isolated strain QT4. **Figs 5–13.** LM images of strain QT4. **Fig. 5.** Initial valve. **Figs 14–16.** LM images *P. michiganiana* from plankton samples. Scale bars SEM: 1 μm , LM: 5 μm .

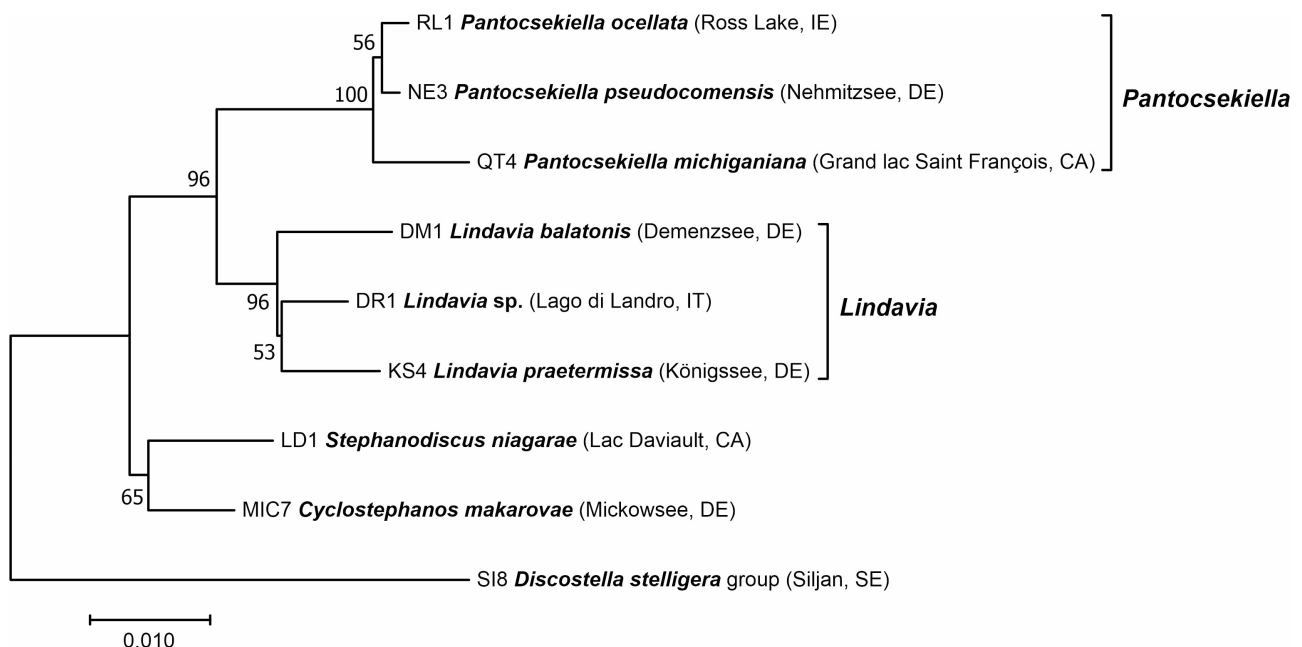


Fig. 17. Clustering analysis of monoclonal diatom strains, based on partial 18S (V4), LSU (D2-D3) and *rbcL* sequences using the neighbour joining method and 10000 bootstrap replicates. Model: Tamura 3-parameter (Tamura, 1992) with gamma distribution. Note that the clusters corresponding to *Lindavia* and *Pantocsekiella* both have high support (96-100%) and *P. michiganiana* clusters with the other *Pantocsekiella* strains.