



A new species of the genus *Sellaphora* (Bacillariophyta) from waterbodies in the Far North of Western Siberia, Russia

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With 6 figures and 1 table

Abstract: Phytoplankton samples from watercourses in the Far North of Western Siberia have yielded a species new to science, *Sellaphora khursevichiae* Genkal & Yarushina sp. nov., for which we provide scanning electron micrographs to illustrate the new taxon. This similar to *S. ellipticolanceolata*, *S. langebertalotii* and *S. mutatoides*, but differs from them in morphology of sternum and in some quantitative characteristics.

Key words: Far North of Western Siberia, Karelia, phytoplankton, electron microscopy, Bacillariophyta, *Sellaphora*.

Introduction

The genus *Sellaphora* Mereschkowsky was described in 1902 and with two representatives of the genus *Navicula* transferred to this new genus and three new species described (Fourtanier & Kociolek 2011). Later, Mann (1989) transferred seven taxa from the genus *Navicula* and, in the following years, tens of representatives, mainly of the same genus, were assigned to the genus *Sellaphora*. About 130 species listed in Catalogue of Diatom Names (2011) and 68 more combinations were included in the genus in a recent publication by Wetzel et al. (2015).

In the middle of the last century 11 representatives of the genus *Navicula* were included in the first summary of diatom systematics but later transferred to the genus *Sellaphora*: *Navicula americana* Ehrenberg, *N. bacillum* Ehrenberg var. *bacillum*, *N. bacillum* var. *gregoryana* Grunow, *N. pupula* Kützing var. *pupula*, *N. pupula* var. *rectangularis* (Gregory) Grunow, *N. pupula* var. *rostrata* Hustedt, *N. pupula* var. *elliptica* Hustedt, *N. hustedtii* Krasske, *N. ambda* Cleve, *N. seminulum* Grunow (Zabelina et al. 1951). Later on, for Russia, this list was significantly expanded (up to 44) including 19 representatives from the Lake Baikal flora (Kharitonov & Genkal 2012; Kulikovskiy et al. 2012; Genkal & Yarushina 2014, 2016; Kharitonov 2014; Genkal et al. 2015; Chudaev & Gololobova 2016), and a number of forms were identified only to the genus (Genkal et al. 2011, 2015; Kulikovskiy et al. 2012; Genkal & Lepskaya 2014; Genkal & Yarushina 2014a, b, 2016).

Based on SEM studies of material from rivers in the Far North of Western Siberia, this paper gives a description of a new species from the genus *Sellaphora*.

Material and methods

Phytoplankton samples from water courses in the Far North of Western Siberia served as material for this study (Table 1). Diatom frustules were released from organic matter by cold burning (Balonov, 1975). Specimens were examined in a JSM-25S scanning electron microscope.

Table 1. Geographic coordinates and hydrological characteristics.

Date	Waterbody	Length, km	Temperature of water, °C	pH	Coordinates
Tazovsky Peninsula					
24.08.2010	Sobetyakha River	58	11	6.9	N 68°05'00» E 75°38'00»
North-East Yamal Peninsular					
21.08.2010	Edyakha River	54	6.5	–	N 71°43'14» E 71°31'35»
18.08.2010	Cobolyakha River	46	8	–	N 71°53'42» E 72°18'56»
20.08.2010	Venyakha River	54	7	–	N 71°32'43» E 71°04'40»

Results and discussion

Sellaphora khursevichiae Genkal & Yarushina sp. nov. Figs 1–6.

Description: Valves elliptical-lanceolate, ends gradually protracted subcapitate or subrostrate and obtusely rounded. Length 16.8–33.0 µm, breadth 5.4–7.8 µm. Raphe filiform, straight, central pores small slightly deflected, somewhat widely spaced. Axial area narrow, linear. Central area broadly expanded bow-tie-shaped by strongly shortened striae. Terminal areas or apical bars respectively distinct. Striae strongly radiate throughout, 17–22 in 10 µm, areolae 50–60 in 10 µm.

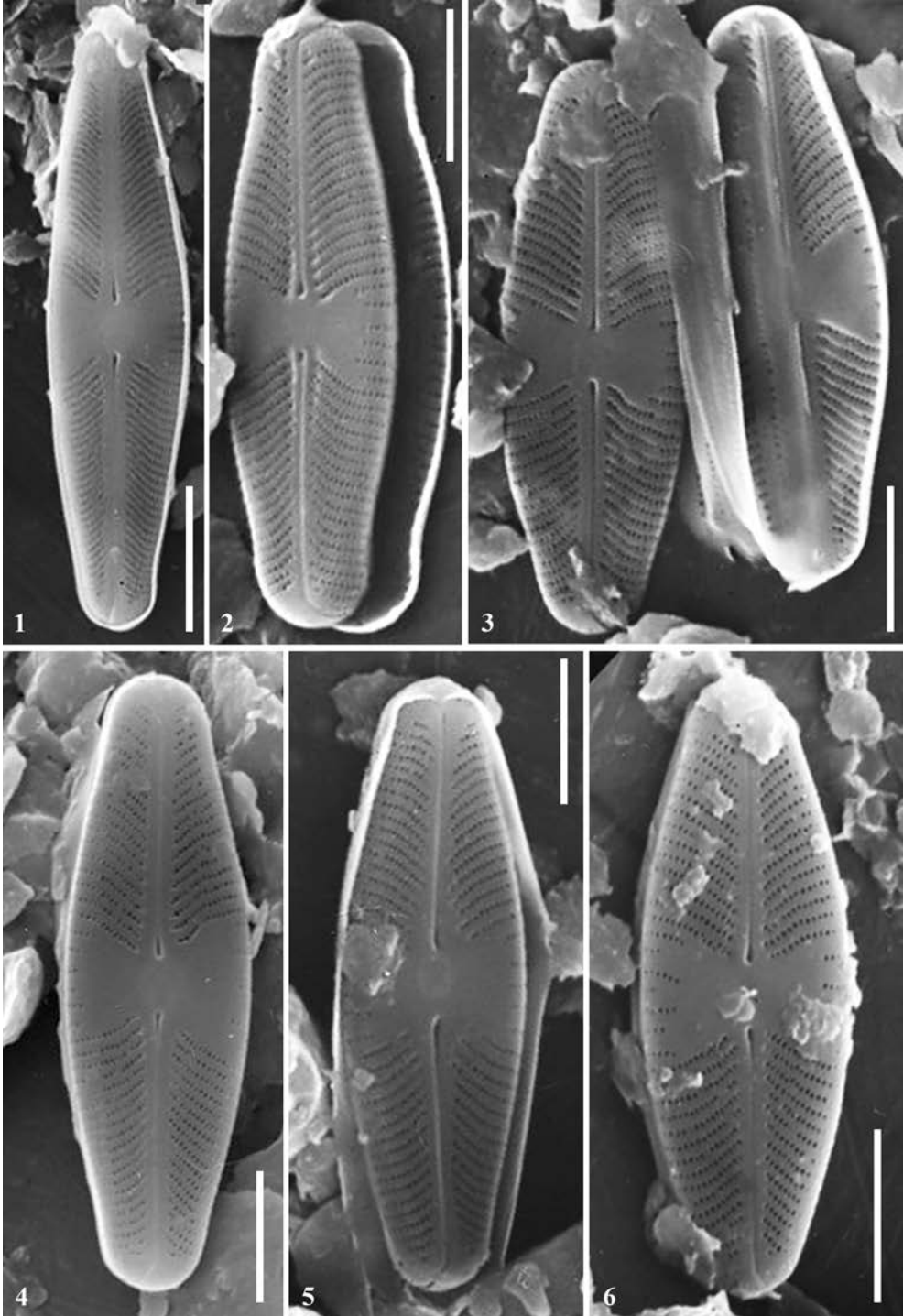
Holotype: SEM stub with specimen (illustrated here in Fig. 1) in S.I. Genkal's collection, Papanin Institute for Biology of Inland Waters, Russian Academy of Sciences.

Type location: Sobolyakha River, N 71°53'42" E 72°18'56", the Yamal Peninsular, Russia.

Etymology: The species is named after G.K. Khursevich, a famous Belarus diatomologist who is celebrated in the current volume.

Distribution: The Yamal Peninsular (Sobolyakha River, Venyakha River, Edyakha River), Tazovskiy Peninsula (Sobetyakha River).

Sellaphora khursevichiae sp. nov. shows variability in the valve shape which occurs, for example, in *S. hustedtii* (Genkal & Yarushina 2014a) as well as in other genera: *Navicula* s.l. (Genkal & Kharitinov 2010), *Chamaepinnularia* (Genkal & Yarushina 2016), *Humidophila* (Buczko et al. 2015). By the valve shape and some quantitative features, *Sellaphora khursevichiae* sp. nov. bears resemblance to *S. ellipticolanceolata* Metzeltin, Lange-Bertalot & Nergui, but differs from the latter by smaller valve width, greater number of areolae in 10 µm and the raphe-sternum structure (Metzeltin et al. 2009). *Sellaphora khursevichiae* sp. nov. also resembles *S. langebertalotii* Metzeltin and *S. mutatooides* Lange-Bertalot et Metzeltin but differs from them by the size of central area and morphology of sternum (Metzeltin, Lange-Bertalot 2002).



Figs 1–6. *Sellaphora khursevichiae* sp. nov., SEM. Figs 1–6. Scale bars = 5 µm. 1–6 – external view, variation of central area; 3 – internal view.

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