

Table S1. The main light microscopic morphological features of *Sellaphora archibaldii* and some similar small naviculoid diatoms.

Taxon	Length (μm)	Width (μm)	L/W	No. of striae/ 10 μm	Valve shape	Apices	Striae	Axial area	Central area	Reference
<i>Sellaphora archibaldii</i> comb. nov.	5.5–6.3	2.8–3.4	1.9–2.0 (1.8–2.1 present study)	32–36	Rhombic lanceolate to rhombic elliptic	Acutely rounded	Radiate	Narrow, linear	Small, elliptic	TAYLOR & LANGE–BERTALOT 2006
<i>S. becaresii</i> comb. nov.	5.2–5.8	2.2–2.7	2.2–2.4	30–40	Rhombic lanceolate	Cuneate rounded or slightly protracted	Radiate	Narrow, linear	Small, elliptic	BLANCO et al. 2009
<i>S. chistiakovae</i>	8–10.7	4.6–6.4	No data	16–20	Broadly elliptical	Broadly elliptical	Radiate	Moderately narrow	Transapically expanded, bow–tie shaped	KULIKOVSKIY et al. 2010
<i>S. madida</i>	6–9	3–3.5	No data	28	Lanceolate	Rounded	Radiate	Narrow, linear	Exposed towards the margin by shortened striae	KOCIOLEK et al. 2014
<i>Craicula subminiscula</i>	7–24	3.2–5.1	No data	15–26(34)	Broadly elliptical to rhombic elliptical	Rounded or acutely rounded	Parallel	Narrow, linear	Absent	MOSER et al. 1998
<i>Fallacia indifferens</i>	6.5–8	2.5–3.2	No data	34–45	Elliptic lanceolate	Rounded	Covered by conopeum, striae can not see in LM			ROUND et al. 1990
<i>Lacuneolimna novagallia</i>	9.8–18.2	5.5–9	1.7–2.3	16–23	Rhombic elliptical to elliptical	Cuneately rounded	Radiate	Narrow	Exposed towards the margin by shortened striae	TUDESQUE et al. 2015
<i>L. zalokariae</i>	7.6–15	4.2–4.9	1.7–2.9	18–21	Rhomboid, broadly lanceolate to elliptic	Rounded	Radiate	Narrow	Exposed towards the margin by shortened striae	TUDESQUE et al. 2015
<i>Navicula confusa</i>	5.5–7	2.5–3	No data	20–26	Elliptical lanceolate to citriform	More or less cuneate to round	Radiate	Narrow, expanded laterally	Rectangular	KOCIOLEK et al. 2014
<i>Navicula microrhombus</i>	6–7	4.4–5	No data	22–30	Broadly rhombic	Broadly to acutely rounded	Radiate, short, 1.3–2.6 μm long from valve apex to central pore	Narrow, linear to linear lanceolate	Absent	SCHOEMAN & ARCHIBALD 1977
<i>Navicula muciculoides</i>	>8	6.5	No data	~25			Radiate			HUSTEDT 1942
<i>Navigiolium adamantiiforme</i>	6–7	4.5–5.4	No data	20–24	Rhombic–lanceolate	Broadly rounded to acuminate	Radiate	Broad lanceolate to rhombic–lanceolate	Large	TAYLOR & LANGE–BERTALOT 2006