

Transfer of *Cymbella koidzumiana* Skvortsov to the genus *Navicula*

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Abstract *Cymbella koidzumiana* Skvortsov is transferred to *Navicula*. *Cymbella hybrida* Grunow reported by Skvortsov from Japan is considered to be identical with this taxon.

Key words: *Cymbella hybrida*, *Navicula alisoviana*, *Navicula koidzumiana*, new combination.

Introduction

B. V. Skvortsov (=B. W. Skvortzow) reported *Cymbella hybrida* Grunow from several lakes in Japan (Skvortzow, 1936a, b, 1937). However, the material used in the reports does not agree with the isotype individual of *C. hybrida* presented by Krammer and Lange-Bertalot (1986, fig. 145: 3). Furthermore, it differs from the form of *Navicula viridula* var. *linearis* and *N. viridula* var. *slesvicensis* (as *N. slesvicensis* Grunow) presented in Krammer and Lange-Bertalot (1986).

Tuji (2003) considered that the taxon was *Navicula viridula* var. *alisoviana* Skvortzow and made a new combination, *Navicula alisoviana* (Skvortsov) Tuji, for this taxon. However, after the publication, I found that *Cymbella koidzumiana* described by Skvortsov in Skvortsov and Noda (1971) agrees with *Navicula alisoviana* (Skvortsov) Tuji. *C. koidzumiana* has a priority for *Navicula alisoviana* in species rank. Therefore, *Cymbella koidzumiana* Skvortsov is transferred to *Navicula*.

Materials and Methods

The material used in Skvortzow (1936a) is an isotype material for *C. koidzumiana*. Raw material from Lake Kizaki (TNS-AL-55512m in TNS), thought to be isotype material of Skvortzow's

(1936a) earlier collection (Tuji, 2003; Tuji and Williams, 2006), was used to examine specimens of *C. koidzumiana*.

The Raw material from Lake Biwa (TNS-AL-53965m in TNS), thought to be an isotype material of Skvortzow's (1936b) earlier collection (Tuji 2002), and a material (TNS-AL-54418 in TNS) from Lake Biwa used in Tuji (2003) were also examined for this taxon.

Results and Discussion

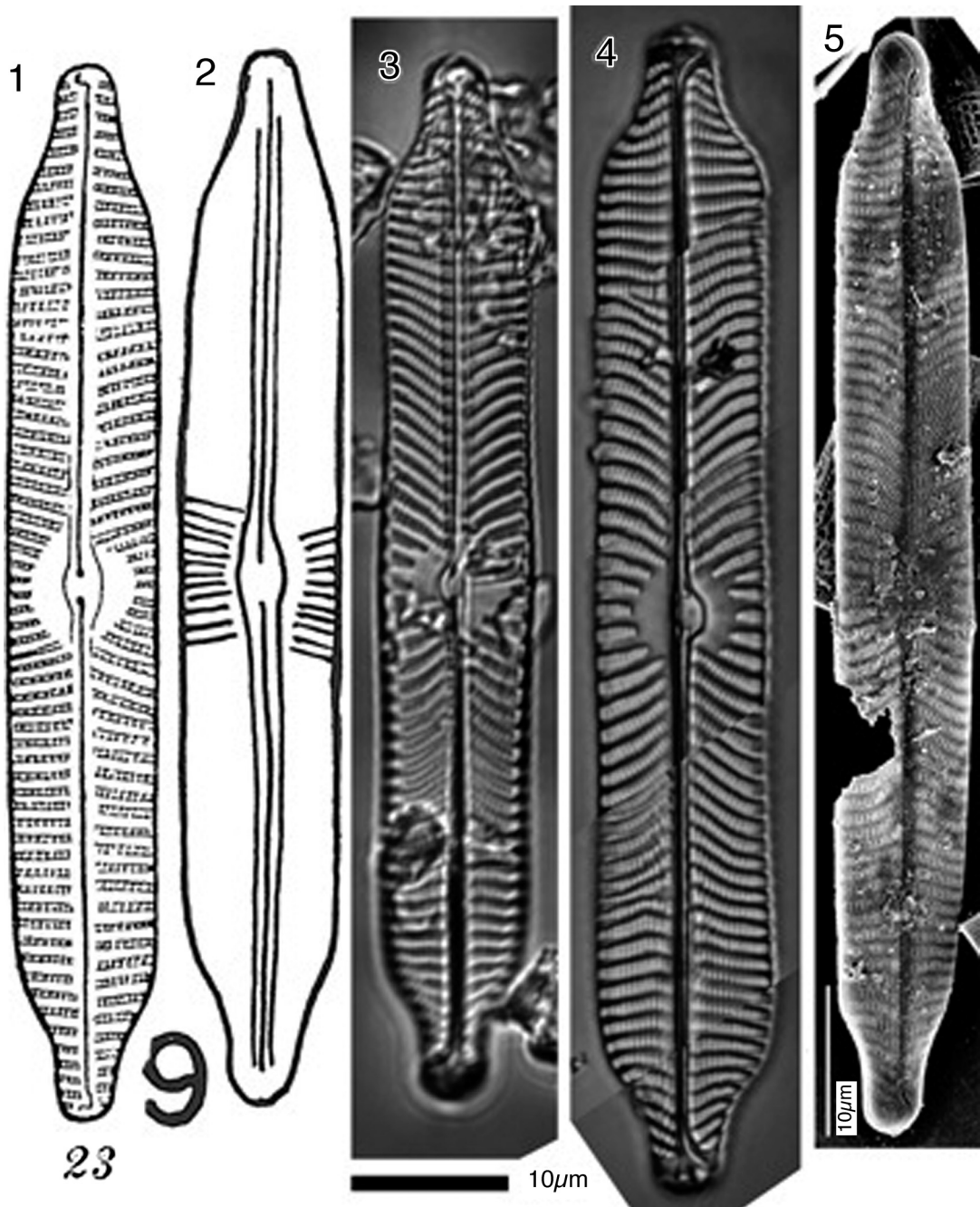
Navicula koidzumiana (Skvortsov) Tuji, comb. nov.

Basionym: *Cymbella koidzumiana* Skvortsov in Skvortsov and Noda, Sci. Rep. Niigata Univ., Ser. D. (Biology). **8**: 20. pl. 3. f. 9. 1971. Type locality: Lake Kizaki, Nagano Pref., Japan. Holotype slide: unknown.

Cymbella hybrida Grunow sensu Skvortzow, Philipp. J. Sci. **61**: 49. pl. 5. f. 23. 1936.

Navicula viridula var. *alisoviana* Skvortsov, Mem. South. Ussuri Branch State Russian Geogr. Soc. **22**. Pl. 4, f. 22, syn. nov. *Navicula alisoviana* (Skvortsov) Tuji sensu Tuji, Bull. Natn. Sci. Mus., Tokyo, Ser. B **29**: 67, 2003.

Distribution and ecology: Lake Kizaki (Skvortzow, 1936a as *C. hybrida*), Lake Biwa (Skvortzow, 1936b as *C. hybrida*), Lake Ikeda (Skvortzow, 1937 as *C. hybrida*). Probably epipelic in large lakes.



Figs. 1–5. *Navicula koidzumiana* (Skvortsov) Tuji. 1. Original illustration of *Cymbella hybrida* Grunow in Skvortzow (1936a) from Lake Kizaki. 2. Original illustration of *Cymbella koidzumiana* Skvortsov in Skvortsov and Noda (1971: plate 3, figure 9). 3, 4. LM. Newly taken sample from south basin of Lake Biwa (TNS-AL-54418 in TNS). 5. SEM. Original material of Skvortzow (1936b) from Lake Biwa (TNS-AL-53965m in TNS).

Raw material: ? TNS-AL-55512 in TNS (Department of Botany, National Museum of Nature and Science) (see Tuji and Williams, 2006).

Although twenty slides from the isotype material (TNS-AL-55512) have been examined, no suitable specimens was found in these slides. Skvortsov described many rare taxa in his publications. However, it is very difficult to find these taxa in newly made isotype slides (Tuji pers. obs.).

The individuals from the south basin of Lake Biwa (Tuji, 2003, Figs. 8, 9 as *Navicula alisoviana*) (Figs. 3, 4) and the SEM micrograph taken from the Skvortzow's material from Lake Biwa (Fig. 5) agree with *N. koidzumiana* in its outline, but slightly wider (10 and 11 μm) and more coarse density of striae (7 and 8 per 10 μm) than the original description of this taxon (width: 8.5 μm , striae 9 per 10 μm). Since this taxon is rare and the morphological variation of this taxon is not clear, I identified these individuals as *N. koidzumiana* in this paper. It might be a different variety of this species, and further study should be needed.

Navicula koidzumiana is very similar to *Cymboplectra hybrida* group (Krammer, 2003) in valve outline and circled and large central area, but it differs by the ?-shape raphe distal ends. This taxon should not belong to *Cymbella* group, but to *Navicula viridula* species complex.

The illustration of *N. koidzumiana* (Fig. 2) seems to be different from that of *Cymbella hybrida* (Fig. 1). However, the size "lg. 68 micr. lt. 85 micr." in Skvortsov and Noda (1971) and "Length, 0.068 mm; breadth, 0.0085" in Skvortzow (1936a) and density of striae "9 in 10 micr." in Skvortsov and Noda (1971) and "9 in 0.01 mm" in Skvortzow (1936a) are completely identical in both species. The difference between the illustrations of both species is probably due to the over-

simplification of the illustrations in Skvortsov and Noda (1971).

Navicula koidzumiana is also similar to *N. viridula* species complex including *N. viridula* (Kütz.) Ehrenb., *N. rostellata* Kütz. and *N. rhynchocephala* Kütz. However, *N. koidzumiana* is larger and having more coarse striae density than other similar taxa.

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