

## Type Examination of *Cyclotella woltereckii*Hust. (Bacillariophyceae) with Special Attention to the Position of Its Rimoportula

Akihiro Tuji<sup>1</sup> and David M. Williams<sup>2</sup>

<sup>1</sup> Department of Botany, National Science Museum, Amakubo 4–1–1, Tsukuba, 305–0005 Japan  
E-mail: tuji@kahaku.go.jp

<sup>2</sup> Department of Botany, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

**Abstract** Isotype material of *Cyclotella woltereckii*Hust. was examined using SEM. Two taxa were observed in this material. Since, both are presented in the photographs of the holotype slide by Simonsen (1987), we designate here a lectotype individual from this slide.

**Key words:** rimoportula, *Discostella*, *Cyclotella pseudostelligera* complex.

### Introduction

Taxa included in the genus *Discostella* Houk & Klee, which included species from the *Cyclotella stelligera* group, have been reported worldwide as a planktonic species (e.g. Krammer & Lange-Bertalot, 1991, Tuji & Houki, 2001, Houk & Klee, 2004). However, the identification of this group has not been clear. Characters used for identification of this group, such as central area pattern, density of and branching of the striae, are not sufficient to secure identification of this group. Tuji & Houki (2001) pointed out that the position of the rimoportula is very good character for the identification of *Cyclotella pseudostelligera* group, because position and from of rimoportula varies so much in the taxa of *Discostella*. They presented SEM photograph of five species of *Cyclotella*, *Cyclotella pseudostelligera* Hust., *Cyclotella stelligeroides* Hust., *Cyclotella woltereckii* Hust., *Cyclotella glomerata* H. Bachm. and *Cyclotella hellae* Chang & Steinberg, which illustrated the position of their rimoportulae.

Nevertheless, this character has not been sufficiently examined in the type material of relevant species. Recently, Houk & Klee (2004) published two SEM's from the type material of *C. woltereckii*. However, the two photographs appear to be different taxa, hence further examina-

tion was required.

In this study, we examined the type material of *C. woltereckii* paying special attention to the position of its rimoportulae.

### Materials and Methods

Isotype raw material, from a small pond in a botanical garden, Buitenzorg, Java (Coll. Hustedt As 1329 in BRM), was examined using SEM.

### Results and Discussion

Examination of type material for *Cyclotella woltereckii*Hust. revealed two different species of *Discostella*, which correspond to those illustrated with light micrographs in Houk & Klee (2004: f. 119–120, and 121–122, respectively). One taxon (Fig. 1) has a stalked rimoportula on the valve face/mantle junction, the other (Fig. 2) has a sessile rimoportula on the mantle, close to the valve end. The position of rimoportulae is thought to be a stable and very important character for the identification of centric diatoms (Theriot *et al.*, 1987; Likhoshway & Crawford, 2001; Tuji & Houki, 2001) hence both kinds of specimen observed in the type material correspond to different taxa. The first corresponds with the current concept of *C. woltereckii*(Krammer & Lange-Bertalot, 1991; Tuji & Houki, 2001), the other to that of *C. pseudostelligera* Hust. (Tuji &

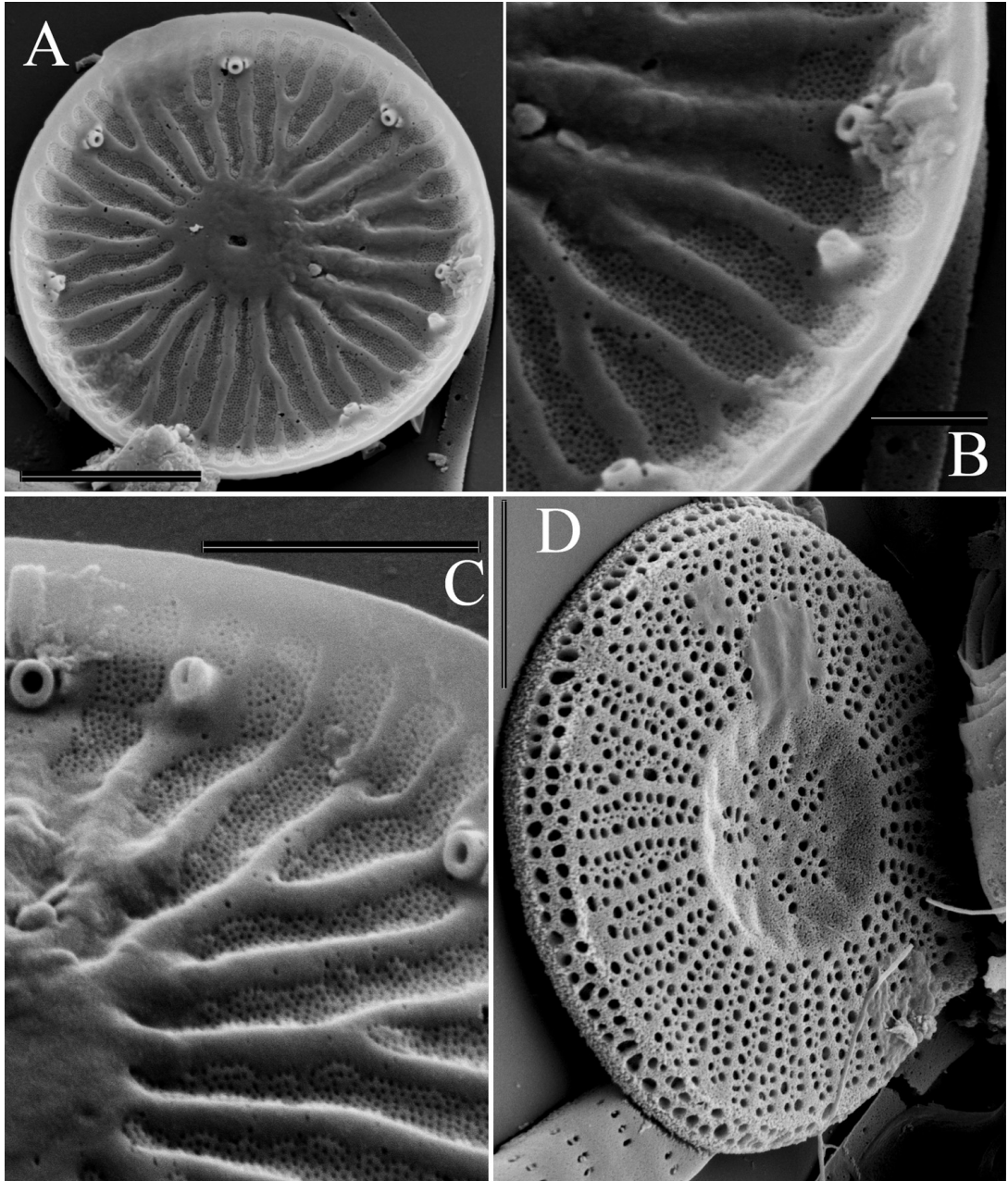


Fig. 1. *Cyclotella woltereckii*Hust. Isotype. Coll. Hustedt As 1329, from a small pond in Buitenzorg, Java.  
A: Inner view of valve face. B, C: Inner view of valve face showing a stalked rimoportula on valve face/mantle junction. D: External view of valve face.

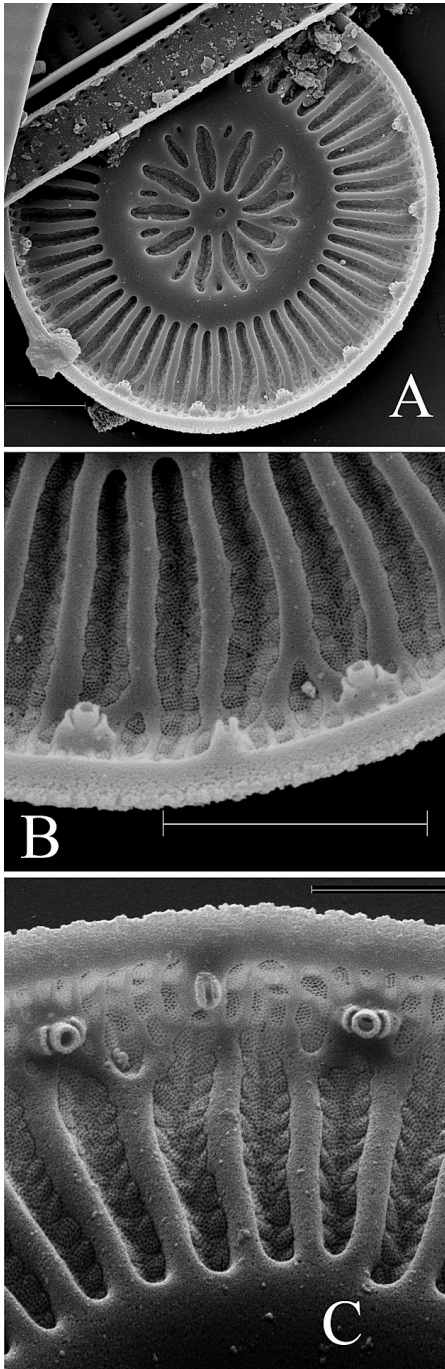


Fig. 2. *Cyclotella pseudostelligera* Hust. Coll. Hustedt As 1329, from a small pond in Buitenzorg, Java.

A: Inner view of valve face. B: Inner view of valve face showing a sessile rimoportula on the mantle closed the valve end. C: External view of valve face.

Houki, 2001).

Since both were previously illustrated from the holotype slide of *C. woltereckii*(Simonsen, 1987, plate 400, figs 7–14), we will designate an individual specimen as lectotype for *C.*

*Discostella woltereckii* (Hust. )

Houk et Klee Diat. Res. **19**: 223. 2004.

Basionym: *Cyclotella woltereckii*Hust. Arch.

Hydrobiol. **42**: 16. f. 11–13. 1942.

Holotype: A slide Ac/68 (micrographs in Simonsen, 1987: Plate 400, figs 7–14)

Lectotype (designated here): Selected individual at position 467.1 on the holotype slide BRM Ac/68 (=Plate 400, figure 9 in Simonsen, 1987).

#### Acknoeagements

We extend our thanks to Richard Crawford and Friedel Hinz of the Friedrich Hustedt Study Centre for Diatoms, Alfred Wegener Institut für Polar—und Meeresforschung (BRM) for help in their herbarium and the loan and gift of specimens.

#### References

- Houk, V.& R. Klee, 2004. The stelligeroid taxa of the genus *Cyclotella* (Kützing) Brebisson (Bacillariophyceae) and their transfer into the new genus *Discostella* gen. nov. *Diatom Research*, **19**: 203–28.
- Krammer, K.& H. Lange-Bertalot, (eds.), 1991. Bacillariophyceae. 3. Teil: Centrales, Fragilariaceae, Eunotiaceae. Gustav Fischer Verlag, Jena.
- Likhoshway, Ye.V. & R. M. Crawford, 2001. The rimoportula—a neglected feature in the systematics of *Aulacoseira*. Proceedings of the 16th International Diatom Symposium (ed. by A. Economou-Amilli), University of Athens, Greece, 33–47.
- Simonsen, R., 1987. Atlas and Catalogue of the Diatom Types of Friedrich Hustedt. *J. Cramer, Berlin & Stuttgart*, **1**: 525 pp, **2**: 597 pp, **3**: 619.
- Theriot, E., E. Stoermer, & H. Hakansson, 1987. Taxonomic interpretation of the rimoportula of freshwater genera in the centric diatom family Thalassiosiraceae. *Diatom Research*, **2**: 251–265.
- Tuji, A. & A. Houki, 2001. Centric diatoms in Lake Biwa. Lake Biwa Research Institute, Otsu, 90 pp.

In original paper, I misspelled \*woltereckii\* as \*wortereckii\* including the title..

In this PDF, I have changed it.