



## *Planothidium lagerheimii* comb. nov. (Bacillariophyta, Achnanthes) a forgotten diatom from South America

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### Abstract

A new combination in the genus *Planothidium* is proposed. The identity of *Planothidium lagerheimii* (Cleve) C.E. Wetzel & Ector comb. nov. ( $\equiv$  *Cocconeis lagerheimii* Cleve), from South America is revisited. This rather common species often reported from freshwater and aerial environments was identified in previous studies either as *Cocconeis rudis* Frenguelli or *Planothidium salvadorianum* (Hust.) Lange-Bert. ( $\equiv$  *Achnanthes salvadoriana* Hust.). After having measured the original images and based on photographs gathered in the literature we concluded that the three species, *Cocconeis lagerheimii*, *Cocconeis rudis* and *Achnanthes salvadoriana*, belong to the same taxon. Following the International Code of Nomenclature the correct name is the earliest legitimate one with the same rank. Thus the species having priority should be Cleve's species described in 1894. Freshwater material from southern Brazil was investigated to illustrate ultrastructural details.

**Key words:** Taxonomy, new combination, *Planothidium*, *Achnanthes*, Achnantheaceae, morphology, South America, Cleve, Frenguelli, Hustedt

### Introduction

*Cocconeis* ('*Heteroneis*') *lagerheimii* Cleve (1984a: 100) was collected in Ecuador by N.G. von Lagerheim and described by P.T. Cleve in his paper entitled '*Les Diatomées de l'Equateur*'. The provenance of the sample indicated is '*San-Nicolas, Los Rios*', nowadays a province of Ecuador. The first illustration, with a more complete and slightly different description, however, appeared only in a further publication '*Sur quelques espèces nouvelles ou peu connues*' by Cleve (1894b: 143, pl. 3, figs 21–22). Cleve (1895) in his synopsis included the species under the genus *Heteroneis* Cleve (1895: 182), a genus that "*comprises forms, which appear not to be very closely connected*" and which gathered species under the genera *Achnanthes* Bory (1822: 79) and *Cocconeis* Ehrenberg (1837: 173). According to Fourtanier & Kociolek (1999), *Heteroneis* was invalidly published as the name of a subgenus of *Achnanthes* in Cleve (1893) due a lack of description. No combinations were made by Cleve (1895) under this name, which clearly shows that he considered it a subgenus. Several species are included by Cleve (1895) and no type is designated. Since the original description *Cocconeis lagerheimii* was rarely mentioned in the literature and the few records are restricted to Central and South America (e.g. Hagelstein 1939, Luchini & Verona 1972 cited in Vouilloud 2003).

*Cocconeis rudis* Frenguelli (1953: 70) was described as a rare species from the *Misiones* region in Argentina. The species was collected at two different localities: a first sample from a waterfall (Salto Tabay), near Puerto Leoni, on filamentous algae attached at wet walls composed by basaltic rocks; a second sample from a stream bank near Sierra de Santa Victoria (ca. 40 km east from the Iguassu waterfalls) on submerged plants. Frenguelli publication appeared in 18<sup>th</sup> June 1953 according indication on page 86.

Frenguelli (1953: 71) pointed the differences of his new species *Cocconeis rudis* compared to *Cocconeis lagerheimii*:

"*La valva sin rafe (superior) de la nueva especie se parece algo a Cocconeis (Heteroneis) Lagerheimii Cl. del Ecuador (Cleve, Equateur, pág. 100, lám. 3, figs. 21–22), pero es más grande que ésta, tiene menor número de series de perlas en su área hialina y diferentemente dispuestas; además su valva inferior es mucho más robusta y de estructura muy diferente*".

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