



Morphology, ultrastructure and distribution of *Placoneis itamoemae* sp. nov. (Cymbellaceae) from Brazil

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Abstract

The analysis of samples from different Brazilian subtropical localities revealed an unknown *Placoneis* species. This paper describes the new species *Placoneis itamoemae* Straube, Tremarin & Ludwig based on valve morphology revealed with light and scanning electron microscopy. Related taxa such as *Navicula clementis* var. *linearis* Brander and *Placoneis conveniens* Hustedt are also compared. The new species is characterized by elliptic-lanceolate valves, rostrate apices, one to three very conspicuous isolated pores at the central area, uniseriate striae with inconspicuous areolation, and distal raphe ends deflected to opposite sides. *Placoneis itamoemae* was found in lotic and lentic environments of southern and southeastern Brazil.

Introduction

According to Round *et al.* (1990), the genus *Placoneis* Mereschkowsky (1903:3) belongs to Cymbellaceae, along with thirteen other genera, based on striae structure and cytoplasmic features (Krammer 1997a, b, 2003, Cox 2003, Jüttner 2010). The Cymbellaceae is represented by individuals generally asymmetrical in relation to the apical axis with straight or arcuate raphe and an H-shaped plastid (Patrick & Reimer 1975, Round *et al.* 1990, Krammer 2003, Cox 2003). Recently, relationships within cymbelloid diatoms were supported by molecular data (Brüder & Medlin 2007, 2008).

Currently, *Placoneis* has about 143 species and intraspecific taxa (Fourtanier & Kociolek 2011). Among the features of the genus are the symmetrical valves with lanceolate to linear outline, the rostrate or capitate apices which may be more or less pronounced, the pore like central raphe endings and the hooked distal ones, and the radiate pattern of uniseriate or biseriate striae, more spaced in the central region of the valve, composed by rounded areolae (Round *et al.* 1990, Cox 1987, 2003). Additionally, some species may have one or more isolated pores in the central area of the valve (Cox 1987).

A new diatom species, *Placoneis itamoemae* Straube, Tremarin & Ludwig, is described from Brazilian waterbodies. Light and scanning electron microscopy observations of frustule morphology and comparisons with similar species are presented.

Material and methods

Placoneis itamoemae was found in plankton and periphyton samples collected from lentic and lotic