



Gyrosigma xiamenense sp. nov. (Bacillariophyta) from the middle intertidal zone, Xiamen Bay, southern China

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Abstract

Gyrosigma xiamenense sp. nov., a new diatom species from the middle intertidal zone, Xiamen Bay, southern China, was studied by light and scanning electron microscopy. The valves are large and sigmoid, with parallel sides. The raphe sternum has single curvature. Externally, a row of round pores is present on the mantle; isomorphic proximal raphe fissures turn first in opposite directions, then both final parts of the fissures run nearly parallel to the longitudinal striae. Internally, a row of areolae closest to the raphe sternum is capped by small projections on the primary side whilst these are absent on the secondary side; proximal raphe endings are first club-shaped, then the final parts of the two raphe endings form two T-shaped slits being separated from the club-shaped part by a tiny bridge; there is a vermiform bar in the middle of the raphe nodule. *G. xiamenense* is epipellic and lives in marine habitats.

Key words: Benthic diatom, *Gyrosigma*, intertidal mud-flats, symmetrical biraphid, Xiamen Bay

Introduction

Species belonging to *Gyrosigma* Hassall (1845: 435) are readily recognized by their sigmoid valve outline and their perpendicular stria system. At first glance, many *Gyrosigma* species appear superficially similar. With the advent of widespread usage of the scanning electron microscope (SEM), a number of “simulacrum species” (Sterrenburg 1995) have been described as new species that possess different ultra-structures. For example, at least six new species have been described since 1992 around *Gyrosigma balticum* (Ehrenberg) Rabenhorst (1853: 47) (basionym: *Navicula baltica* Ehrenberg 1830: 114) and allied species: *Gyrosigma sterrenburgii* Stidolph (1992: 347), *Gyrosigma waitangiana* Stidolph (1993: 142), *Gyrosigma pensacolae* Sterrenburg (1995: 402), *Gyrosigma cali* G. Reid in Reid & Williams (2003: 140), *Gyrosigma gibbyi* G.Reid in Reid & Williams (2003: 132), and *Gyrosigma murphyi* G. Reid in Reid & Williams (2003: 138). The species described below also falls into this category.

Because China possesses an enormous coastline from north to south, there is a great potential to discover new diatom species in this littoral zone. Nevertheless, there are only few studies which presented new species in this area. One new species, *Gyrosigma rostratum* Liu, Williams & Huang in Liu *et al.* (2015: 256), has been recently described from Xiamen Bay, China. Also in Xiamen Bay we found another *Gyrosigma* species that superficially resembles *G. balticum* and allied species because of its large size and parallel sides. However, it differs from the species mentioned above and does not match any other known described taxon. Here we describe this new species, *Gyrosigma xiamenense*, discuss its taxonomic position within the genus and report on its living habitat.

Materials and methods

Site description:—The study site (24°31'54"N, 118°20'16"E) is in the middle intertidal zone of Yangtang Village,