Cocconeis tortilis: a new marine diatom (Bacillariophyta, Cocconeidae) from Japan

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Abstract

A new species of Cocconeis, C. tortilis, was found on some seaweed collected from the Izu and Okinawa Islands of Japan. Its morphology was examined using both light and electron microscopy; details are described herein. This small diatom is characterized by: 1) a concave raphid valve with a straight raphe inclined from the apical axis, central area forming stauros, and uniseriate striae consisting of circular areolae occluded by hymens: 2) a twisted convex araphid valve with a narrow lanceolate sternum inclined from the apical axis, and uniseriate striae consisting of several loculate areolae occluded by hymens: and 3) a cingulum consisting of three non fimbriated girdle bands including a valvocopula.

Key words: Bacillariophyta, Cocconeis tortilis, Japan, marine diatom, new species

Introduction

This report is a continuation of our previous papers dealing with morphological and taxonomic investigations of species in the genus Cocconeis (Ehrenberg 1837: 173; Nagumo & Kobayasi 1985, Suzuki et al. 2001). In the present study, an unrecognized species of Cocconeis was found growing on seaweed (e.g. Codium intricatum Okamura 1913: 74) and the seagrass Zostera japonica Ascheron & Graebner (1907: 32) from the coasts of Izu Islands, Minami-Daito Island and Okinawa Islands, both affected by the Kuroshio Current. It has been named C. tortilis Hide. Suzuki sp. nov. and is described using light (LM), scanning and transmission electron microscopy (SEM and TEM); it is compared to similar taxa.

Material and methods

Samples were obtained from seaweeds and seagrass collected from the intertidal zone of the North Pacific coast of Japan at the following localities (Fig. 1):

I. Tsuchikata beach (34°04’20”N, 139°28’41”E), Miyake Island, the Izu Islands, Tokyo, epiphytic on Codium intricatum (Codiaceae, Ulvophyceae) collected by A. Takahashi on 3 July 2012, material and slide BM 101683 and MTUF-AL-43010;

II. Shioma beach (33°04’06”N, 139°50’07”E), Hachijo Island, the Izu Islands, Tokyo, epiphytic on Asparagopsis taxiformis (Delie) Trevisan (Bonnemaisoniaceae, Rhodophyceae) collected by A. Kobayashi on 28 June 2003, material MTUF-AL-43011;

III. Honba beach (25°52’19”N, 131°14’58”E), Minami-Daito Island, the Daito Islands, Okinawa Pref., epiphytic on Jania sp. (Corallinaceae, Rhodophyceae) collected by T. Nagumo on 17 Feb. 2004, material MTUF-AL-43012;

IV. Eef beach (26°19’54”N, 126°48’39”E), Kume Island, the Okinawa Islands, Okinawa Pref., epiphytic on the
providing us with the samples treated herein. We thank anonymous reviewers for valuable suggestions and comments. This work has been partially supported by a Grant in Aid for Scientific Research (C: 24580261 & 25450272) from the Japan Society of the Promotion of Science.

References


