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Tabularia kobayasii: a new araphid diatom (Bacillariophyta, Fragilariaceae) from Japan

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Abstract

A new species of *Tabularia*, *T. kobayasii*, was found on seaweeds collected from several estuaries in the Central Pacific coast of Japan. Its morphology was examined by light and scanning electron microscopy; details are described herein. This araphid diatom is characterized by: 1) tufted or band-like colony; 2) valves lanceolate, flat with steep mantle, striae consisting of cribrate areolae, a wide lanceolate sternum, single rimoportula, and an occelulimbus at both poles; and 3) a cingulum consisting of a few non-fimbriated girdle bands including the valvocopula.

Key Words: araphid diatom, Bacillariophyta, estuary, Japan, new species, *Tabularia kobayasii*

Introduction

Tabularia Williams & Round (1986: 320) (Bacillariophyta, Fragilariaceae) is one of the commonest marine '*Synedra*' *sensu lato* forms. Its species are usually epiphytic or epilithic and attached to substrata by mucilage pads, usually in tufts. Fourteen species are listed in Algaebase (Guriry & Guiry 2015). *Tabularia* differs from the other similar genera, such as *Hyalosynedra* Williams & Round (1986: 318) and *Neosynedra* Williams & Round (1986: 332), by virture of the structure of the vela and presence of an ocellulimbus. In addition, because of the fine structure of the striae, Williams & Round (1986) informally subdivided the genus into the following three groups: i) those with valves having biseriate striae with simple closing plates; ii) those with valves having cribra with heavily silicified cross-members; and iii) those with valves having a complex cribrate closing plate.

In this study, an unrecognized species of *Tabularia*, belonging to the second group, was found growing on seaweeds (e.g. *Caloglossa ogasawaraensis* Okamura (1897: 13)) from several estuaries in the Central Pacific coast of Japan. It is described using light (LM) and scanning electron microscopy (SEM) and comparisons are made to similar taxa. It has been named *Tabularia kobayasii* Hidek. Suzuki & Mitsuishi *sp. nov*.

Material and methods

Samples were obtained from seaweeds collected from several estuaries in the Central Pacific coast of Japan as listed in Table 1. Samples and type slides were deposited at the Natural History Museum (BM 101792), the Museum of Fishery Sciences, Tokyo University of Marine Science and Technology, Japan (MTUF-AL 43058–43077), and the Micropaleontology Collection, National Museum of Nature and Science, Tokyo (MPC-RM-HK 4711 and 4718).

Samples were fixed with 2.5% glutaraldehyde or 10% formalin solution. The material was treated using the bleaching method as described by Nagumo & Kobayasi (1990), Nagumo (1995) and Osada & Nagumo (2001). Light and scanning electron microscopy techniques are described in Kuriyama *et al*. (2010). Prepared specimens were examined using HITACHI S-5000 SEM (The Nippon Dental University School of Life Dentistry at Tokyo).

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