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A type study and emended description of *Haslea wawrikae* (Bacillariophyta)

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Abstract

Type slides and the last remnant of the type sample of *Haslea wawrikae* were examined in LM and SEM. An emended diagnosis is presented, one new finding being that the transverse bars of the basal layer on either side of the raphe are offset—the bars on the one side aligning with the areolar foramina on the other. The species is confirmed (SEM) to have a fully developed raphe and the valve structure characterising *Haslea* species: an internal "grate-like" basal layer and an external tegumental layer with continuous longitudinal fissures. An erroneous identification of *H. wawrikae* was traced in the literature and the existence of similar, but non-conspecific, species is suspected.

Introduction

In Sterrenburg *et al*. (2015) seven new *Haslea* (Simonsen 1974: 46) species were presented, demonstrating that the morphological variety in the genus is much greater than the broadly generalizing descriptions in the literature—*e.g*. Round *et al*. (1990: 576), Massé *et al*. (2001: 625)—would suggest. It was shown that *Haslea* species are characterized by a sandwich-structured valve consisting of an internal grate-like basal layer and an external tegumental layer perforated by continuous longitudinal fissures. These two layers are shored by longitudinal "bulkheads" that are perforated so that they form fence-like rows (saepes) of columns. The valve contour ranges from fusiform or naviculoid to sigmoid and amphoroid. The central external raphe endings are not just simple straight fissures, they may be homolaterally or heterolaterally deflected (and sometimes either in the same species), the terminations range from well-separated to very approximate and overlapping and they may even show complex curvature with prominent teeth and pits. The internal raphe ridge is not always twisted in its more distal portions only but may also be fully tilted sideways over its entire length; conversely, it may not be appreciably tilted at all. The accessory ridge paralleling the raphe ridge may range from prominent to inconspicuous and finally, the central bars may range from prominent to absent.

Among such great variety, one species nevertheless stands out because of its extraordinary filiform valve contour: "*Navicula" wawrikae* Hustedt (1961: 52, fig. 1204), transferred to the genus *Haslea* in Simonsen (1974: 48). Hustedt (1961) writes that the raphe is rudimentary, Simonsen (1974) states that in LM a fully developed raphe can just be visualized. Transfer to the genus *Haslea* in Simonsen (1974) was not based on actual visualization of continuous external areolar fissures in SEM. To obtain a better insight into the morphology of the species, the last remnant of the type material was examined in SEM, which led to an emended diagnosis.

Methods and materials

Methods:—The type material had been oxidized with H_2SO_4, the slides are probably mounted in Pleurax and were examined and photographed with planachromatic objectives and DIC. Additional material was oxidized with H_2O_2. For SEM, stubs with air-dried material were sputtered with Au for examination in SEM.

Materials:—Hustedt (1961) did not designate a holotype in a slide, but marked 4 specimens in three different slides.

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