



## ***Planothidium incuriatum* sp. nov. a widely distributed diatom species (Bacillariophyta) and type analysis of *Planothidium biporomum***

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### **Abstract**

*Planothidium incuriatum* sp. nov. is described from freshwater samples from Europe and South America. It is compared with the type material of *Achnanthes biporoma* (= *Planothidium biporomum*), described from North America, to differentiate it from the new, related species. Species morphologies were compared using both light and scanning electron microscopy. *Planothidium incuriatum* can be differentiated from *P. biporomum* by its valve outline with more rostrate apices (instead of capitate) and by the areolation pattern of the striae in the raphe less valve (higher number of rows of areolae per stria). Distribution of *P. incuriatum* was determined from worldwide iconographic literature records where it was often identified as *Planothidium biporomum* among other names here detailed. While *P. incuriatum* appears to be widely distributed around the world, *P. biporomum* is, according to verified records, far more restricted.

**Key words:** Taxonomy, new species, *Planothidium*, *Achnanthes*, Achnanthaceae, morphology, type material, cavum

### **Introduction**

The genus *Planothidium* Round & Bukht. (1996: 351) contains species previously placed in the genera *Achnanthes* Bory (1822: 79), *Achnantheidium* Kütz. (1844: 75) and *Microneis* P.T.Cleve (1895: 187) and continues to be split into smaller genera as new generic concepts are developed [e.g. *Platessa* Lange-Bertalot in Krammer & Lange-Bertalot (2004: 442), *Gliwiczia* Kulikovskiy, Lange-Bertalot & Witkowski (2013: 3)]. *Planothidium* cells are usually solitary, heterovalvar, with a slightly concave raphe valve and a convex rapheless valve. Valves are mostly elliptic to lanceolate, with rounded, rostrate or capitate apices and multiseriate striae. *Planothidium lanceolatum* (Bréb. ex Kütz.) Lange-Bert. (1999: 287) as the generitype, was first invalidly defined by Round & Bukhtiyarova (1996) due the absence of the basionym, and three years later validly combined by Lange-Bertalot (1999). In the species complex around *P. lanceolatum*, the horseshoe-shaped structure located in the central area is a simple shallow depression called a sinus, whereas in other taxa [e.g. in the group of *Planothidium frequentissimum* (Lange-Bert.) Lange-Bert. (1999: 282)] a hollow chamber covers the horseshoe-shaped structure in the valve interior for which the name cavum is used (Moss & Carter 1982, Morales 2006, Van de Vijver *et al.* 2013).

*Achnanthes biporoma* M.H.Hohn & Hellerman (1963: 273) belongs to the group of species currently in the genus *Planothidium* having an asymmetrical central area on the rapheless valve and internally bearing the so-called cavum. The taxon was transferred to *Planothidium* by Lange-Bertalot (1999) without a detailed analysis of the type material. *Planothidium biporomum* (M.H.Hohn & Hellerman) Lange-Bert. (1999: 281) was originally described from the Savannah River, a large river in the Southeastern United States, by Hohn & Hellerman (1963) who stated that the taxon resembled several varieties of *Achnanthes lanceolata* (Bréb. ex Kütz.) Grunow in Cleve & Grunow (1880: 23), “particularly *A. lanceolata* var. *haynaldii* (Schaarschm.) Cleve (1894: 99)”.