



Ultrastructure and distribution of *Urosolenia obesa* sp. nov. (Rhizosoleniaceae, Diatomeae) in reservoirs from southern Brazil

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Abstract

A new planktonic species of *Urosolenia* is described from Southern Brazilian reservoirs. *Urosolenia obesa* sp. nov. was found in several studied samples and the unique set of features led us to propose it as new and to compare their morphology with similar species found in the literature, as *Rhizosolenia nauii*, *R. eriensis* var. *pusilla* and *Urosolenia parva*. *Urosolenia obesa* differs from the other species mainly by sub-cylindrical frustules, conical valves, calyptra straight, positioned in right to oblique angle in relation to perivalvar axis, ornamented by longitudinal ribs and ending in two teeth and one ligula. Probably, the new species has a wider geographic distribution, since the small size and slightly silicified frustules make it difficult to visualize them by light microscopy analysis of samples.

Introduction

Urosolenia Round & Crawford in Round *et al.* (1990:324) emended Rott *et al.* (2006:112) is distributed worldwide, occurring mainly in the plankton of lentic environments (Rott *et al.* 2006). Species of this genus were previously considered in the marine planktonic *Rhizosolenia* Brightwell (1858:93), proposed by Round *et al.* (1990), including the inland waters species without distinctive rimoportula forming a spine-like process in the valves, or structured grooves for the process engagement (Round *et al.* 1990). *Urosolenia* is mainly characterized by a large number of semi-circular open bands in the cingulum, cylindrical to sub-cylindrical frustules, singly or in pairs, valve with or without ornamentation, calyptrae with variable endings, eventually with teeth and ligula and usually with terminal setae (Rott *et al.* 2006).

There are fourteen species and one variety of *Urosolenia* (Catalogue of Diatom Names 2011, Karthick & Kociolek 2011) currently recognized. Most of them have been proposed in earlier studies (e.g. Schmidt *et al.* 1874–1959, plates 314–315) without a detailed analysis of frustular morphology. Others were recent, distinguishing the proposed species by frustule form and size, number of bands, valve and calyptra ornamentation, number and shape of teeth, and presence or absence of setae (Rott *et al.* 2006, Sala *et al.* 2008).

More recent papers on *Urosolenia* have been developed. Edlund & Stoermer (1993) analyzed the spore resistance of *Urosolenia* and *Acanthoceras* Honigmann (1910:76); Rott *et al.* (2006) studied *Urosolenia* species from tropical and subtropical environments, proposing three new taxa [*Urosolenia brevispinosa* Kling, McGregor & Rott in Rott *et al.* (2006:114), *U. diademata* Rott & Kling in Rott *et al.* (2006:115) and *U. parva* Kling, Rott & McGregor in Rott *et al.* (2006:117)] and two new combinations [*U. brauni* (Hustedt 1952:367) Rott & Kling in Rott *et al.* (2006:114) and *U. victoriae* (Schröder 1912:739) Kling & Rott (in Rott *et al.* 2006:118)]; Sala *et al.* (2008) described two new species, *U. delicatissima* Sala, Núñez-Avellaneda & Vouilloud (2008:163) and *U. amazonica* Sala, Núñez-Avellaneda & Vouilloud (2008:163), when analyzing Colombian and Peruvian Amazon samples; Li *et al.* (2009) made the record of *U. delicatissima* to China; and Karthick & Kociolek (2011) described two new species [*U. curvata* Karthick & Kociolek (2011:32) and *U. extensa* Karthick & Kociolek (2011:34)] from the Western Ghats, South India.