



Four new centric diatoms (Bacillariophyceae) from the Western Ghats, South India

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Abstract

Four new species, including two newly recorded genera of diatoms, are described from lentic habitats of Western Ghats, South India. The new species are *Pleurosira indica*, *Spicaticribra kodaikanaliana*, *Urosolenia curvata* and *U. extensa*. *Pleurosira indica* and *Spicaticribra kodaikanaliana* were collected from Kodaikanal Lake in Tamil Nadu and the two *Urosolenia* species are collected from Hirebhasker Dam in Karnataka, India. *Pleurosira indica* differs from other members of the genus by the irregularly arranged areolae and c-shaped depressions associated with the rimoportulae. *Spicaticribra kodaikanaliana* lacks the large central openings found in *S. kingstonii*, but is otherwise very similar to this North American taxon. The two new *Urosolenia* species, *U. extensa* and *U. curvata*, have distinct shapes to their valves, unlike other previously described species of the genus. All of these new species were observed with light and scanning electron microscopes, and we discuss their systematic positions.

Introduction

Diatom research in India has a history of over one hundred and fifty years (Ehrenberg 1845). Notable work on diatom taxonomy from this region includes the publications of Skvortzow (1935), Gonzalves and Gandhi (1952, 1953, 1954), Krishnamurthy (1954), Gandhi, (1959, 1966, 1970, 1998), Venkataraman (1957) and Sarode & Kamat (1984). Most of these works were focused on the pennate diatoms, with less or almost no attention given to the centric forms. For the first time, Desikachary's *Atlas of the Diatoms* (Desikachary & Ranjitha Devi 1986, Desikachary & Prema 1987, Desikachary *et al.* 1987, 1987a, Desikachary 1988, 1989) provided detailed illustrations and photomicrography of many recent marine and fossils centric forms from the Indian Ocean. Most of the freshwater centric forms are, however, often overlooked in plankton samples or fitted to the classical genera described from Europe (*viz.* *Cyclotella* (Kützing) Brébisson, *Aulocoseira* G.H.K. Thwaites, *Melosira* C. A. Agardh and *Coscinodiscus* Ehrenberg), without further examination. It appears that studies on the ecology and taxonomy of freshwater diatoms have been dismally neglected in India although phytoplankton ecology has received frequent attention (Sarma & Khan 1991, Karthick 2010), as is the case generally for the tropics (Silva 2007). Consequently, studies on Indian freshwater centric diatoms are few, though there are a few recent works on the centric genera from the tropics (Rott *et al.* 2006, Sala *et al.* 2008). Kociolek & Spaulding (2002) and Khursevich & Kociolek (accepted) suggest these diatoms may have great importance for understanding evolutionary and ecological phenomena.

Freshwater centric diatom taxonomy and systematics has been undergoing significant revision and discovery over the past 30 years, with many new genera of fossil (e.g. *Pliocaenicus* Round *et* Håkansson *emend* Khursevich & Stachura-Suchoples (2008), *Tertiarius* Håkansson & Khursevich (1997), *Mesodicyton* Theriot & Bradbury (1987), *Mesodictyopsis* Khursevich *et al.* (2004), *Ectodictyon* Khursevich *et* Chernyaeva