

ORAL PRESENTATION

THREE NEW SPECIES OF THE DIATOM GENUS *GOMPHONEMA* EHRENBERG FROM INDIA AND PHYLOGENETIC RELATIONSHIPS OF THE FRESHWATER CYMBELLOID AND GOMPHONEMOID DIATOMS

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Three new species from the Central Western Ghats, Karnataka State of India are described as new to Science. All three species have distinctly dilated proximal raphe ends, in addition to differentiated apical pore fields, septa, pseudosepta and a round stigmal opening. *Gomphonema sp. #1* is linear-lanceolate-clavate, has a wide axial area, and is 19-51 μm long, 3-7 μm broad. *Gomphonema sp. #2* is smaller than *G. sp. #1*, and has a hyaline area around the headpole. *Gomphonema sp. #3* is much smaller and more narrow than the other two species. These closely related species are distinguished by their sizes, shape and structure of the headpole, and striae densities. We assess the phylogenetic position of the new species within the clade of freshwater gomphonemoid and cymbelloid diatoms, incorporating data from these new taxa, as well as from the new genus *Rexlowea*. We compare our results with previous morphology- and molecular-based phylogenies. The cymbelloid diatoms do not appear to be monophyletic, yet the gomphonemoid diatoms are monophyletic. We discuss some biogeographic implications of the phylogenetic relationships and the new species from India.