



Small-sized and discoid species of the genus *Cocconeopsis* (Bacillariophyta) on *Holothuria atra* (Juan de Nova, Mozambique Channel)

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Abstract

Several small-sized and discoid naviculoid diatoms, close to *Cocconeopsis* (Bacillariophyta, Biraphidineae), were found on the teguments of *Holothuria atra* (Juan de Nova lagoon, 17° 02.797'S; 42° 43.811' E, Scattered Islands, Mozambique Channel). These taxa were apparently absent from the macroalgae and sediments of the same site. The taxa are illustrated in LM (light microscopy) when possible and SEM (scanning electron microscopy), and compared to species of *Cocconeopsis* and similar genera. The new taxa are temporarily classified under the genus *Cocconeopsis*, but their membership in another genus or to a new genus is discussed. *Cocconeopsis juandenovens* sp. nov. was rather rare on the sea-cucumber teguments, two other taxa were very rare. All have relatively similar features (length, striation), but their SEM characteristics are distinct enough to separate them as different taxonomic entities. The epizoic diatom sample was composed of more than 12 genera. The new taxa were not observed in previous marine surveys in Mascarenes. An epizoic affinity of these taxa with the holothurian host is conceivable.

Key words: *Cocconeopsis juandenovens* sp. nov., Scattered Islands, Mozambique Channel

Introduction

The diatom flora of tropical coral reefs is highly diverse (e.g. in Florida Keys, Montgomery 1978; Fiji Islands, Foged 1987; Bahamas, Hein *et al.* 2008). A few studies have concerned the marine and freshwater diatoms from the Mozambique Channel, Madagascar and Tanzania coast (e.g. Manguin 1952, Foged 1975, Sournia 1968), but the diatom communities of Indian Ocean reefs remains poorly documented. The Scattered Islands (Îles Eparses) are the fifth district of the French "Terres Australes et Antarctiques Françaises" since 2007, including four ancient coral islands close to Madagascar (e.g. Europa, Juan de Nova, Grandes Glorieuses and Tromelin) and one atoll submerged at high tide (Bassas da India). These islands are actually free of strong anthropogenic influence. The "EPARSESES 2009" cruise (TAAF, N.O. Marion Dufresne II) was permitted to collect phycological samples and environmental data. Juan de Nova was investigated in more detail. Filamentous cyanobacteria (e.g. species of *Phormidium* Kütz. ex Gomont and *Lyngbya* C. Agardh ex Gomont) are very abundant in Juan de Nova lagoon and its corals are in bad health (Chabanet & Durville 2005, pers. obs.). A massive bleaching and coral mortality occurred in 1998 and in 2009, only some massive-boulder corals remained, while branching species were mostly broken and apparently dead (pers. obs.).

The COSADIME project (Coral Sand Diatoms off Eparses) deals with microphytobenthos and particularly diatoms from coral environments. A sample scraped from the teguments of a large specimen of *Holothuria atra* Jaeger (Holothuridae; known as the black sea cucumber or lolly fish) from Juan De Nova Island, permitted a comparison of its epizoic diatom assemblage to that of proximate sediments and macroalgae. *Holothuria atra* is generally covered by a detrital layer (coral sand, diatoms, fungi) held together by mucus, acting as a sort of camouflage.