

A REEVALUATION OF GENERA WITHIN THE RHAPHONEIDALES POSSESSING EXTRA-APICAL RIMOPORTULAE.

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The diatom order Rhaphoneidales Round et al. (1990) is described as: “*Cellulae solitariae vel catenas breves facientes. Valvae circulars vel bipolares vel multipolares. Areolae simplices rotis occlusae. Rimoportulae plerumque as apices, raro circum peripheriam positae. Areae apicales porellorum praesentes sed indistinctae. Copulae plures apertae. Plantae solum maris habitantes*”.

This description indicates both broad morphological plasticity and a limited number of unique characters. Despite the extreme morphological variance, it is clear that this does represent a natural grouping of araphid coastal marine diatoms that in several respects defy the centric-pennate dichotomy. Its morphologic diversity in part defines its uniqueness as a group, with high generic diversity and generally low diversity at the species level. *Raphoneis* displays moderate diversity at the genus level, but many genera include but a few known species, despite a long fossil record.

An attempt to categorize morphologic characters of the genera within the Raphoneidales using a cladistic approach, including modern and fossil taxa, resulted in a complex matrix of potential classifications with a distinct lack of parsimony, calling for further character examination. One of the most reliable characters to distinguish genera appears to be the fine structure of the vellum, only visible via SEM.

One of the key morphologic features that appear to make a small but distinct subgroup within the Raphoneidales is the occurrence of marginal rimoportulae outside of an apical area. Known examples include *Diplomenora* (Blaze, 1984) and *Adoneis* (Andrews and Rivera, 1987). An examination of original Janisch (1862) slides identified as *Cocconeis superba* (later transferred to *Raphoneis superba* by Grunow, 1862) from Anagamos guano, northern Chile, is found to include numerous extra-apical rimoportulae. Frenguelli (1949) erected *Detonia superba* based on examination of material from the Mejillones area, though it is unclear whether the material was directly comparable with that examined by Janisch. Frenguelli does not indicate extra-apical processes in his description or illustration. The reexamination of Janisch material calls for a redefinition of *Detonia*, and may call into question the validity of the genus *Diplomenora*.

References:

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