

***Nitzschia omanensis* sp. nov., a new diatom species from the marine coast of Oman, characterized by valve morphology and molecular data**

ABSTRACT

An unidentified diatom species belonging in the genus *Nitzschia* isolated from samples in the Omani coastal region of the Arabian Sea is the focus of the present study. This species has been successfully cultivated in the laboratory and DNA was harvested and sequenced. Light microscopy (LM) and scanning electron microscopy (SEM) examination of the strain revealed some distinct features, of which the ultrastructure of canal raphe and the absence of central nodule are the most remarkable ones. In terms of morphology, the strain being studied resembles taxa belonging in *Nitzschia* sect. *Lanceolatae*. However, our phylogenetic tree based on a three-gene dataset, comprising concatenated nuclear-encoded small-subunit ribosomal DNAs (SSU) and chloroplast encoded (*rbcL* and *psbC*) shows that our strain is sister to *N. filiformis*, which belongs in *Nitzschia* sect. *Obtusae*. This species that we have named *Nitzschia omanensis*, is thus far only known from the harsh coastal waters of Oman, which are characterized by very high daily temperatures and extremely low precipitation.

Keyword: Arabian Sea; Biodiversity; Diatoms; New species; *Nitzschia omanensis*; Oman