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INCONSISTENCIES IN THE MORPHOLOGY OF SOME INDIVIDUALS OF THE GENUS *TERPSINOE* (EHREMBERG) (BIDDULPHIACEAE)

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ABSTRACT

The fine structure of *Terpsinoe* sp., a diatom from the coastal region of Sergipe, Brazil is described.

Key words: Sergipe, diatom, *Terpsinoe*, rimoportula.

RESUMO

Descreve-se a estrutura fina de *Terpsinoe* sp., diatomácea da região costeira de Sergipe, Brasil.

Palavras chave: Sergipe, diatomácea, *Terpsinoe*, rimoportula.

INTRODUCTION

Terpsinoe Ehr. is a very distinctive genus with a precise ecological distribution. Its structure and ecology are very close to its relative *Hydrosera* Wall (Round *et al.*, 1990).

The valvar structure of the specimens in the material presented in this paper was examined by light microscopy (LM) and scanning electron microscopy (SEM). Some inconsistencies found are briefly described.

A plankton net with a mesh size of 60 µm was used. Specimens were preserved in 4% buffered formalin. For permanent slides preparation, the material was rinsed with distilled water to remove salts, and oxidized boiling for one hour in 30% hydrogen peroxide to remove organic matter. For electron microscopy (SEM), the oxidized material was washed in deionized distilled water.

Approximately 40 specimens were observed under the electron microscope JEOL JEM-1200, at the University of Rhode Island, United States.

MATERIAL AND METHODS

Specimens examined in this study were collected monthly during one year, at the Piauí-Fundo-Real estuarine system, in the coastal region of Sergipe, northeast Brazil.

RESULTS AND DISCUSSION

Dimensions: 40-150 µm length of apical axis, 35-55 µm length of perivalvar axis.

Bipolar cells, rectangular in girdle view, with characteristic pseudosepta; undulate in valve view.

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Valves, with variable number of undulations (4-8 observed) and slightly capitate apices terminating in pseudocelli (Fig. 1).

Valve face and mantle covered with a very silicified meshwork with openings of variable sizes, having the margins covered with rows of spines. Externally on the valve face no areolar structure was clearly divided. Siliceous outgrowths were noticeable inside of these openings (Fig. 2). The meshwork is comparable to the coarse areolation covering the valve face and mantle of *Hydrosera* (Round *et al.*, 1990).

A conspicuous feature was observed off-centre over the valve face, an apparently unknown process, designated here as a “receded-process” (Fig. 2), because of its position, surrounded by the meshwork.

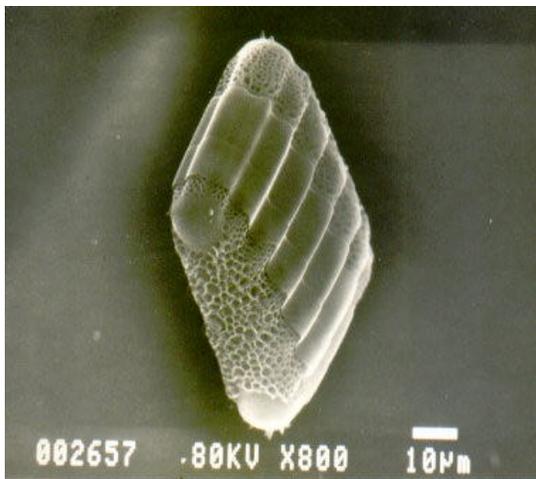


Figure 1. *Terpsinoe* sp. External valvar structure.

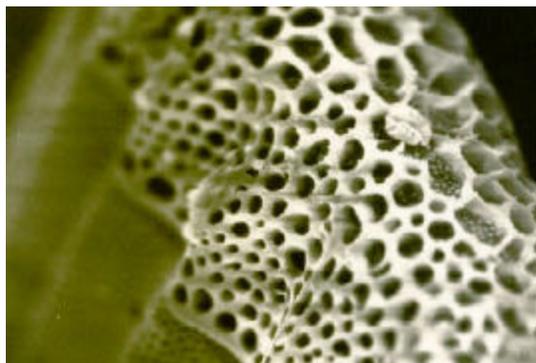


Figure 2. *Terpsinoe* sp. “receded-process”

Probably, this process has a short stalk underneath the enlarged upper part, but internally on the valve face, no openings or projections were noticed (Fig. 3). No rimoportulae were observed internally as well as externally on the valve face, what is a characteristic of this genus (see Round *et al.* 1990).

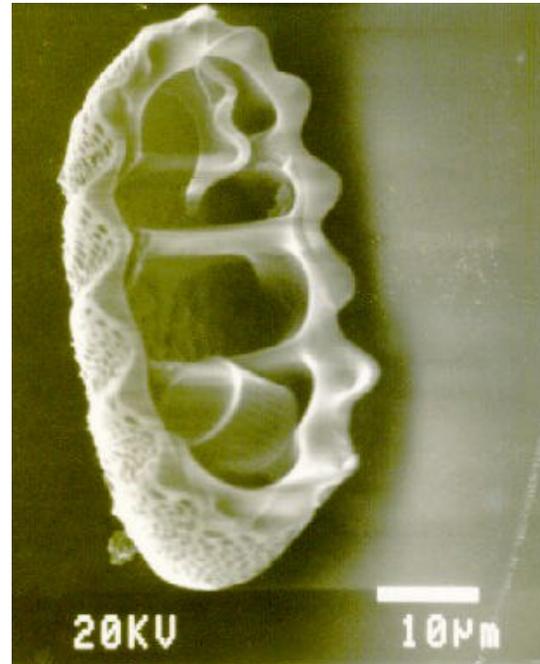


Figure 3. *Terpsinoe* sp. Internal valvar structure.

The pseudocelli seems to be finely ‘porate’ and are covered with small spines. Two large spines (up to 1,5 μm), visible in LM, were placed well apart in the pseudocelli, diverging from the origin in an angle (Figs. 4 and 5). Although, these large spines were absent in few of the cells observed (Fig. 6). Similar spines were observed in the genus *Hydrosera* Wall. (Ricard, 1987 and Round *et al.*, 1990) placed around the outer rim of the pseudocelli.

Girdle finely areolated, with the punctate type of areolae arranged in a quincunx (Figs. 1 and 5). No similar processes or spines were observed in *T. americana* (Bail.) Ralfs and *T. musica* Ehr., common species in the study area.

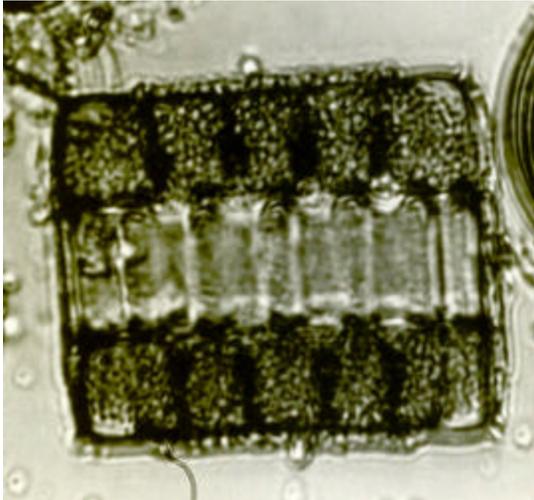


Fig 4. *Terpsinoe* sp. Pseudocelli with large spines (LM observation)

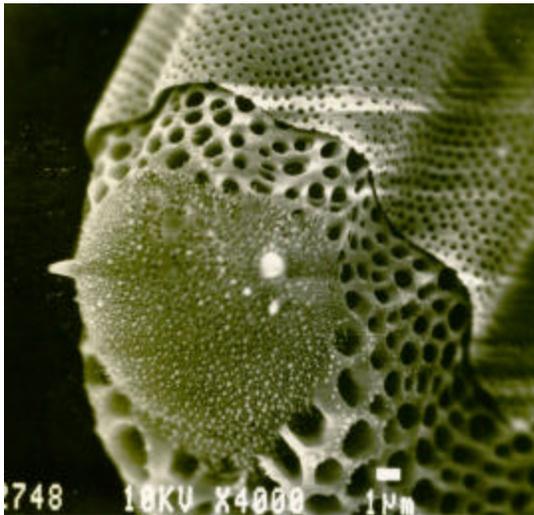


Figure 5. *Terpsinoe* sp. Pseudocelli with large spines

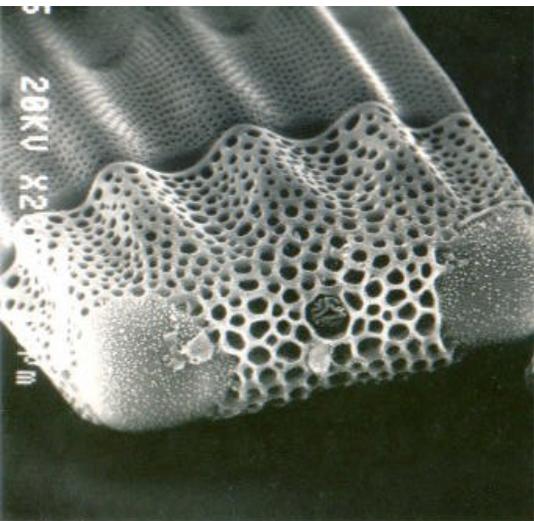


Figure 6. *Terpsinoe* sp. Pseudocelli without large spines

The description of the genus (Ehremberg 1843) did not mention processes or spines (*Terpsinoe*, Musikthierchen.. Tafel III. iv. 1. vii. 30). In Schmidts Atlas (1874-1959), clear drawings of *Terpsinoe* spp. (Taf. 199, 1-8, 9-13; Taf. 200, 1-6, 7-8, 15-19), are also deprived of such structures.

The diatom in Van Heurk (1899: 453, Fig.177), *Terpsinoe* (*Pleurodesmium*) *Brebissonii*, shows similar features as those for the cell described here. However, no spines or processes were observed.

Terpsinoe sp. was found in coastal waters ranging from euhaline to oligohaline. Considering the relatively large number of cells studied and the observations presented here, further investigation is necessary in order to characterize this genus.

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