

MORPHOLOGY, ULTRASTRUCTURE AND GENETIC AFFINITY OF *Tetraselmis* sp.  
(CHLORODENDROPHYCEAE, CHLOROPHYTA) ISOLATED FROM GUANABARA BAY, A TROPICAL  
ESTUARY OF SOUTHEASTERN BRAZIL

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This study describes the morphology, the ultrastructure and the 18S rRNA gene sequence of *Tetraselmis* sp. isolated from Guanabara Bay, a tropical hypertrophic estuarine embayment surrounded by the city of Rio de Janeiro, southeastern Brazil, where it causes recurrent blooms. Cells of *Tetraselmis* sp. were isolated by successive washes with microcapillary and the cultures were grown in K media without silica, 27 salinity, temperature of 21-23C °, irradiance of 70 mol photons m<sup>-2</sup> s<sup>-1</sup>, photoperiod of 12 hours. The live cells were examined under light microscope using different types of illumination. For transmission electron microscopy the cells were fixed with 2.5% glutaraldehyde, post-fixed with 1% OsO<sub>4</sub> dehydrated in acetone series and embedded in Spurr resin. Ultra-thin sections were stained with uranyl acetate and lead citrate and analyzed using a FEI transmission electron microscope. For molecular biology DNA from culture was extracted using the NucleoSpin<sup>®</sup> Plant II, following the manufacturer's instructions. The 18S rRNA gene was amplified using universal eukaryotic primers and a GoTaq<sup>®</sup> DNA Polymerase kit (Promega), and the sequencing was conducted in the company MacroGen Inc. Cells of *Tetraselmis* sp. are dorsoventrally compressed, bilaterally symmetric, elliptic to obovate in outline, dimensions of 11.3-14.6 X 8.1-9.8 µm, with the flagellar pit is covered with abundant slit hairs at the bottom. A single chloroplast finely lobed is located at the posterior part of cell, with numerous starch grains in the stroma. The pyrenoid matrix circular or irregular in shape, located sub-basally to sub-centrally, is surrounded by many biconvex starch grains and with several cytoplasmic channels. Pyrenoid matrix with cavity opened towards the nucleus (?). Stigma conspicuous associated with chloroplast generally situated in the posterior region of the cell and the next cell periphery. A round nucleus is located in the front half of the cell and two to three dictyosomes are situated around the flagellar base or in the upper lobes of the cell. Phylogenetic analysis based on 18S rDNA sequence data showed that *Tetraselmis* sp. is related to others *Tetraselmis* strains within the *Tetraselmis chui* group. However, it is necessary to confirm the pyrenoidal matrix structure and to sequence more strains including different genetic markers to circumscribe the taxonomy identity of the Brazilian strain.

Keywords: Guanabara Bay, *Tetraselmis*, taxonomy, 18S rDNA  
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