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PLAKORTIDES AND COLESTANE STEROIDS FROM THE MARINE SPONGE Plakinastrella microspicullifera

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Sponges, belonging to the phylum Porifera, are sessile marine organisms with approximately 600 species widely distributed along the Brazilian coastline, from north to south. Among marine organisms, they stand out as prolific producers of bioactive metabolites of interest to humans. For the sponges themselves, these compounds act as chemical defense mechanisms against predators and are also very important in roles in defense, nutrition, and adaptation processes for these inveretbrates. Sponge *Plakinastrella microspiculifera* (Plakinidae) occurs in the Fernando de Noronha Archipelago and on the northern coast of the state of Rio de Janeiro. Preliminary data indicate the presence of substances with potential antitumor and cytotoxic activities. A specimen of this sponge was collected in Fernando de Noronha, and an extract was prepared using a $CHCl_3$:MeOH (1:1) solvent mixture. This extract was lyophilized and subjected to liquid–liquid partitioning with *n*-hexane, dichloromethane, and ethyl acetate. Due to the chemically diverse profile observed by thin-layer chromatography (TLC), the insoluble fraction from the MeOH:H_2O (9:1) resuspension — used for solubilizing the extract prior to partitioning — was further fractionated by adsorption column chromatography using hexane, ethyl acetate, and methanol as eluents. The most apolar fractions, obtained in small amounts, were analyzed by gas chromatography–mass spectrometry (GC-MS), employing a DB-5 column and electron impact ionization (70 eV), for the identification of their chemical constituents. The results obtained so far indicate the presence of plakortides, aliphatic cyclic peroxides previously isolated from other sponge species, and steroids with a cholestane skeleton. Preliminary NMR data support the proposed structures and are currently undergoing advanced stages of structural elucidation. Some of these compounds, according to the literature, exhibit known biological activities such as antimicrobial and cytotoxic effects.

Keywords: *Sponge, Porifera, Natural Products*