Evaluation of the trypanocidal activity of marine microalgae extracts

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Chagas disease, transmitted by *Trypanosoma cruzi*, is one of the Neglected Tropical Diseases (NTDs) classified as endemic in Latin America. Its treatment is limited to drugs that cause adverse effects and are not very effective in treating the chronic phase, which is associated with heart disease, gastrointestinal disorders, and other complications. In this regard, microalgae stand out as potential sources of new trypanocidal substances, as these organisms produce bioactive compounds with various pharmaceutical applications.

Given the evidence of leishmanicidal and trypanocidal activity in some microalgae species such as *Chlorella vulgaris*, this study aims to evaluate the trypanocidal activity of extracts from marine microalgae that have not been previously tested. For this research, the microalgae were obtained from the Microalgae Bank of the Bioprospecting and Biotechnology Laboratory (LABBIOTEC-UFBA) and cultivated in a properly sterile and illuminated environment to ensure their full development. Upon reaching the stationary phase, the wet biomass was collected by centrifugation, freeze-dried, and the extract was prepared by sonication with absolute ethanol, followed by separation of the supernatant and evaporation of its solvent.

To evaluate the trypanocidal activity of the extracts, the tested concentrations ranged from 250 µg/mL to 600 µg/mL, and a colorimetric cell viability assay of the epimastigote forms of *T. cruzi* (strain Y) was performed using MTT. The absorbance results were detected using a spectrophotometer and interpreted by plotting graphs that allowed visualization of the median inhibitory concentration (IC50) and the correlation coefficient. The extracts tested so far were from the following microalgae: Cm, Pt, Ig, Cc, Dsp, No, Pv, and their IC50 results were 31.64; 171.2; 367.7; 436.9; 445.0; 819.3; and 887.4 µg/mL, respectively.

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