



MICROORGANISMS FROM SEDIMENT FROM FERNANDO DE NORONHA ISLANDS PRODUCE CYTOTOXIC COMPOUNDS

Katharine Gurgel Dias Florêncio¹, Evelyne Alves dos Santos¹, Elthon Gois Ferreira¹, Karísia Sousa Barros de Lima², Otilia Deusdênia Loiola Pessoa², Letícia Veras Costa Lotufo³, Diego Veras Wilke¹

¹*Núcleo de Pesquisa e Desenvolvimento de Medicamentos, Universidade Federal do Ceará, Fortaleza, Brazil*

²*Departamento de Química Orgânica e Inorgânica, Universidade Federal do Ceará, Fortaleza, Brazil*

³*Instituto de Ciências Biomédicas, Universidade de São Paulo, São Paulo, Brazil;*

kathy_gurgel@yahoo.com.br

Marine microorganisms are important sources of new bioactive secondary metabolites with promising chemical and pharmacological potential [1]. The high biodiversity of oceanic Brazilian islands is still poorly explored and a very promising source for marine natural products prospection. Studies in this area are considered strategic because it involves knowledge of biodiversity in a broad sense, as well as renewable sources of substances with biomedical importance. This work aimed to search for new compounds with anticancer of microorganisms recovered from the harbor of archipelago Fernando de Noronha. Sediment was collected at the archipelago Fernando de Noronha (3°51,009'S 32°26,434'O), and stored in whirl-packs. The samples processing was carried out by three different methods: dehydration followed by stamp (M1), dilution (M2) and dilution followed by heating at 55°C for 10 minutes (M3). Then, Under sterile conditions, sediment samples were plated into different agar media: sea water agar (SWA), traces metals agar (TMA) and starch casein agar (SCA). Individualized colonies were isolated based on actinomycete characteristics. 7 strains were isolated until now. Pure strains were grown in 100 mL of A1 (soluble starch, yeast extract and peptone) broth in Erlenmeyer flasks (28°C/200 rpm/10 days), extracted with ethyl acetate (EtOAc) and vacuum-dried. The cytotoxicity was evaluated by the MTT assay against the human colon adenocarcinoma cell line HCT-116 after 72h incubation. The crude extract of four of strains showed potent cytotoxic activity with inhibition concentration mean IC₅₀ ranging from 0.078 to 2.58 µg/mL. Studies are in progress towards the isolation of the active compounds. These results highlight the importance of bioactive compounds of marine origin as promising sources of molecules and pharmacological potential. Marine bacteria recovered from sediments of Fernando Noronha island represent a promising source of natural products with biological activity.

References:

[1] Newman, D. J., Cragg, G. M. Marine Natural Products and Related Compounds in Clinical and Advanced Preclinical Trials. **Current Medicinal Chemistry**, Vol.11(13), pp.1693-1713, 2004.

[2] Mosmann, T., J. 1983. Rapid Colorimetric Assay for Cellular Growth and Survival: Application to Proliferation and Cytotoxicity Assays. *Immunol. Methods*, 65: 55-63.