10th Brazilian Conference on Natural Products
XXXVI RESEM
4-7 November 2025, Belo Horizonte, MG, Brazil

Section: 03

Myxobacteria Isolated from Ascidian Eudistoma vannamei and their biotechnological potential anticancer

Lívia Martins Costa[1]*, Isolda de Sousa Monteiro[1], Elthon G. Ferreira[2], Letícia V. Costa-Lotufo[2], Paula Christine Jimenez[1]

martins.costa@unifesp.br

[1]*Instituto do Mar, Universidade Federal de São Paulo, Santos-SP, Brazil;* [2]*Instituto de Ciências Biomédicas, Universidade de São Paulo, São Paulo-SP, Brazil.*

The marine ecosystem is a very rich source of microorganisms that produce bioactive metabolites with pharmacological potential. Among these microorganisms, myxobacteria stand out for their ability to generate secondary metabolites with antimicrobial and antitumor activities. In this context, the present study aimed to isolate, cultivate and evaluate the biotechnological potential of myxobacteria associated with the ascidian *Eudistoma vannamei*. were subjected to selective isolation techniques, resulting in seven distinct strains: five recovered by the *E. coli* bait method and two by cellulose supplementation. The isolated cultures were chopped until purified strains were obtained, and then cultured in liquid medium under agitation. After extraction with acetone and methanol, the extracts were dried, weighed and evaluated for yield and bioactivity. The cytotoxicity of the extracts was analyzed in HCT-116 cells (ATCC CCL-247), a human colorectal carcinoma cell line, by MTT assay, Two extracts presented IC50 values below 20 µg/mL: BRX-092 (3.49 µg/mL) and BRX-093 (18.1 µg/mL). Two extracts exhibited IC50 values between 20 and 100 µg/mL: BRX-088 (82.4 µg/mL) and BRX-095 (49.7 µg/mL). One extract presented an IC50 value above 100 µg/mL: BRX-087 (139.7 µg/mL). The extract from strain BRX-089 inhibited more than 50% of cell proliferation even at the lowest concentration tested. Therefore, it was not possible to calculate an IC50 value for this extract, indicating the need for testing at lower concentrations. In trypsin inhibition assays at 50 µg/mL, extracts BRX-100 (33.76%), BRX-093 (39.74%), and BRX-089 (39.31%) showed activity, suggesting multifunctional bioactivity.The results demonstrate the relevance of myxobacteria associated with ascidians as a source of innovative bioactive compounds with potential for pharmaceutical application.

Keywords: *anticancer, bioprospecting, marine biotechnology, antimicrobial, marine natural products.*