Funded Research Projects

Proposed Format:

Project Title: Biological Activity Evaluation and Mechanism of Action Studies on the Cyanobacterial Polyketide Amantelide A

Project Proponent: Lilibeth S. REYES

Designation of Proponent: Assistant Professor 6

Department and College Proponent: The Marine Science Institute, College of Science

Project Abstract: Amantelide A is a polyketide isolated from a marine cyanobacterium using a bioactivity directed purification. Preliminary antiproliferative activity assessment on amantelide A indicated potent biological activity with sub-micromolar IC50s against HT29 colorectal adenocarcinoma and HeLa cervical carcinoma cell lines. In this study, further biological activity evaluations will be done on amantelide A to establish its selectivity profile and mechanism of action. Amantelide A will be tested alongside the reference polyketides amphotericin B, filipin III and nystatin for antiproliferative effects on HT29, HeLa and MCF7 cancer cell lines and MDCK normal cell line using a tetrazolium-based assay. In addition, the anti-infective properties of amantelide A and reference polyketides will also be established using the broth microdilution assay and employing the Gram (+) bacteria Staphylococcus aureus, Gram (-) bacteria Pseudomonas aeruginosa and fungi Candida albicans and Trichophyton mentagrophytes as test organisms. The effects of amantelide A and reference polyketides on the gross morphology and specific cellular structures will be evaluated using brightfield and fluorescence microscopy. The bioactivity profile and cellular effects of amantelide A will be compared to reference polyketides to provide insights on its mechanisms of action.

Funding Support in Philippine Pesos: 337,000.00

Duration and Status: 12 months

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