

Spatial Variability of Renieramycin-M Production in the Philippine Blue Sponge, *Xestospongia* Sp.

Authors : Geminne Manzano, Porfirio Aliño, Clairecynth Yu, Lilibeth Salvador-Reyes, Viviene Santiago

Abstract : Many marine benthic organisms produce secondary metabolites that serve as ecological roles to different biological and environmental factors. The secondary metabolites found in these organisms like algae, sponges, tunicates and worms exhibit variation at different scales. Understanding the chemical variation can be essential in deriving the evolutionary and ecological function of the secondary metabolites that may explain their patterns. Ecological surveys were performed on two collection sites representing from two Philippine marine biogeographic regions - in Oriental Mindoro located on the West Philippine Sea (WPS) and in Zamboanga del Sur located at Celebes Sea (CS), where a total of 39 *Xestospongia* sp. sponges were collected using SCUBA. The sponge samples were transported to the laboratory for taxonomic identification and chemical analysis. Biological and environmental factors were investigated to determine their relation to the abundance and distribution patterns and its spatial variability of their secondary metabolite production. Extracts were subjected to thin-layer chromatography and anti-proliferative assays to confirm the presence of Renieramycin-M and to test its cytotoxicity. The blue sponges were found to be more abundant on the WPS than in CS. Both the benthic community and the fish community in Oriental Mindoro, WPS and Zamboanga del Sur, CS sites are characterized by high species diversity and abundance and a very high biomass category. Environmental factors like depth and monsoonal exposure were also compared showing that wave exposure and depth are associated with the abundance and distribution of the sponges. Renieramycin-M presence using the TLC profiles between the sponge extracts from WPS and from CS showed differences in the Renieramycin-M presence and the presence of other functional groups were observed between the two sites. In terms of bioactivity, different responses were also exhibited by the sponge extracts coming from the different region. Different responses were also noted on its bioactivity depending on the cell lines tested. Exploring the influence of ecological parameters on the chemical variation can provide deeper chemical ecological insights in the knowledge and their potential varied applications at different scales. The results of this study provide further impetus in pursuing studies into patterns and processes of the chemical diversity of the Philippine blue sponge, *Xestospongia* sp. and the chemical ecological significance of the coral triangle.

Keywords : chemical ecology, porifera, renieramycin-m, spatial variability, *Xestospongia* sp.

Conference Title : ICCE 2016 : International Conference on Chemical Ecology

Conference Location : London, United Kingdom

Conference Dates : December 15-16, 2016