

# 琉球大学学術リポジトリ

## いくつかの観点からの海洋天然物資源の研究

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Abstract

Title Investigation of the Marine Natural Resources with Various Aspects

In this thesis, I, Viqqi Kurnianda, described studies on marine natural products with several viewpoints. The first project was on the confirmation of artifact formation. By exposing a known sesquiterpenoid **16** with sunlight in the presence of a pigment, totally four derivatives **17-18** and **20-21** were obtained. Their structures were characterized with spectroscopic analysis and X-ray crystallography. Compound **21** was found to have a highly oxygenated structure similar to an antimalarial drug artemisinin. The possible oxidation processes for **17-18** and **20-21** with singlet oxygen were also proposed.

In the second project, on our exploration for unique metabolites from marine resources structure elucidation and preparation of derivatives from four groups of organisms were conducted. Structures of two sesquiterpenoids **24** and **25**, originally isolated from the nudibranch *Phyllidiella pustulosa* by a former lab member, were revised after precise spectral analysis. In a study for making molecular probes from halichondramide (**34**), the structures and cytotoxicity of halishigamide A (**35**) and analogs were confirmed. The structures of two new steroid sulfates **47** and **48**, isolated from a red calcareous bryozoan *Calyptotheca* sp. collected at the mesophotic coral ecosystems (MCEs), were characterized. In addition, the structure of a new sesquiterpenoid **66** from a soft coral *Xenia* sp. was elucidated.

As the third project, I was involved in two studies on biodiversity of two groups of marine organisms. In a collaboration with American researchers, their molecular networking study on the diterpenoids of the soft coral *Sarcophyton glaucum* was assisted. Chemical and genetic diversity of nudibranchs of the genus *Phyllidiella* was analyzed after following the results of three former students. By obtaining MS/MS data on isolated sesquiterpenoids **82-99**, the diversity of the nudibranchs was analyzed by using GNPS.

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