



琉球大学学術リポジトリ

University of the Ryukyus Repository

| | |
|------------|---|
| Title | Diverse metabolites of Dysidea sponges |
| Author(s) | Tanaka, Junichi |
| Citation | 琉球大学21世紀プログラム「サンゴ礁島嶼系の生物多様性の総合解析」平成18年度成果発表会 |
| Issue Date | 2007-03-10 |
| URL | http://hdl.handle.net/20.500.12000/659 |
| Rights | |

Junichi Tanaka

Department of Chemistry, Biology, and Marine Science

A number of bioactive molecules have been isolated from sponges of the genus *Dysidea*. In this poster presentation, we present our results on the new metabolites of two *Dysidea* sponges.

The sponge *D. cf. arenaria* can be found along the coast of Okinawa at a depth range of 30-50 m. The morphology looks similar to another species *D. arenaria*, whose metabolites are known to contain potent cytotoxin arenastatins. We collected four specimens of *D. cf. arenaria* at Manza and Zampa in Okinawa, Yonaguni, and Shimoji Islands. After chemical investigation, all of the specimens have been found to contain a series of spongian class diterpenes, however, the specimens could be divided into two chemotypes with the structures (i.e. 1).

The sponge *Dysidea (Lamellodysidea) herbacea* is a widespread sponge in the Indo-west Pacific, and has been the target of drug discovery (i.e. dysiherbaine). According to the past researches, the sponge can be divided into three chemotypes containing: 1) sesquiterpenes, 2) small peptides with a characteristic trichloromethyl group, and 3) polybromodiphenyl ethers (PBDEs). On our collaborative research with Indonesian researchers, we collected a specimen of *D. herbacea* at Sangian Island in Sunda Strait. By separating its lipophilic extract, we obtained four new and ten known PBDEs. Some of them exhibited potent antimicrobial activity against *Bacillus subtilis*. On our interest on structure-activity relationship, we made totally 13 derivatives by methylating new and known ones and also by treating the major constituent 2 under debromination condition. The results indicate that the presence of two phenolic groups and also bromines at C-2 and/or C-5 is important for the exhibition of the antibacterial activity.

Further study may be required to understand chemical diversity of the sponges.

