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伊計島産海洋シアノバクテリア由来、新規シクロプロパン含有ポリケチド ikeiamide 類の単離及び構造決定

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Isolation and structure determination of ikeiamides, new cyclopropane-containing polyketides from a marine cyanobacterium collected at Ikei Island.

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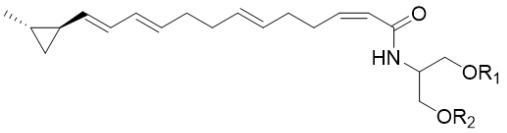
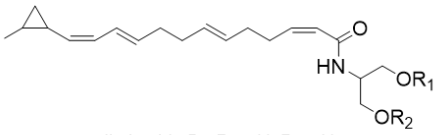
To discover novel natural products possessing remarkable structures and biological activities, we have investigated secondary metabolites of a marine cyanobacterium collected at Ikei Island. As a result, a new polyketide with a cyclopropane moiety, ikeiamide A was isolated. The planar structure of this compound was determined by detailed analyses of several 2D NMR data. Geometry and absolute configurations were determined by a combination of computational chemistry, specific rotation, and CD spectral data. Structure determination of additional analogs, ikeiamides B~M, is ongoing.

Keywords : marine natural products; cyanobacteria; cyclopropane

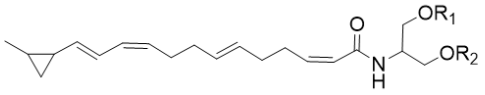
特異な構造や生物活性を示す新規天然物を発見することを目的として、沖縄県伊計島で採集した海洋シアノバクテリアに含まれる二次代謝産物の探索を行った。その結果、シクロプロパン骨格を有する新規ポリケチド ikeiamide A を単離した。本化合物の平面構造は、各種二次元 NMR の解析により決定した。幾何配置及び絶対立体配置は、計算化学、旋光度、及び CD スペクトルのデータをもとに決定した。現在、この化合物の類縁体 ikeiamides B~M の構造決定を行っている。



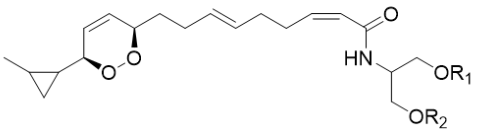
Ikeiamide A : R_1 = H, R_2 = H
Ikeiamide B : R_1 = Ac, R_2 = H
Ikeiamide C : R_1 = Ac, R_2 = Ac



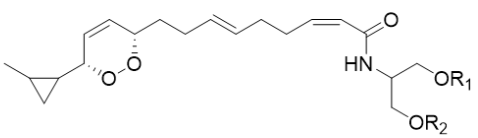
Ikeiamide D : R_1 = H, R_2 = H
Ikeiamide E : R_1 = Ac, R_2 = H



Ikeiamide F : R_1 = H, R_2 = H
Ikeiamide G : R_1 = Ac, R_2 = H



Ikeiamide H : R_1 = H, R_2 = H
Ikeiamide I : R_1 = Ac, R_2 = H
Ikeiamide J : R_1 = Ac, R_2 = Ac



Ikeiamide K : R_1 = H, R_2 = H
Ikeiamide L : R_1 = Ac, R_2 = H
Ikeiamide M : R_1 = Ac, R_2 = Ac