

ISOLATION AND STRUCTURE ELUCIDATION  
OF NATURAL PRODUCTS FROM MARINE  
ORGANISMS AND DETERMINATION OF  
THEIR BIOLOGICAL ACTIVITY

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE

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SRI LANKA

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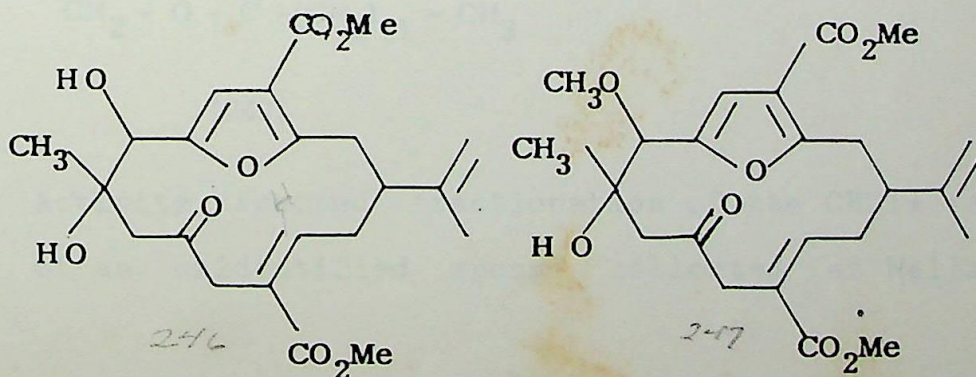


ABSTRACT

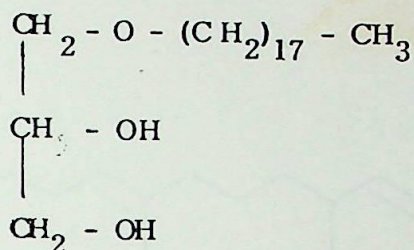
Marine organisms are a fascinating source of biologically active secondary metabolites such as anti-bacterial, anti-fungal, insecticidal, cytotoxic and anti-cancer agents.

This research project was aimed at identifying such bio-active compounds from Sri Lankan marine organisms. The extracts of a number of organisms collected from the Sri Lankan coastal waters were screened for anti-bacterial (against Staphylococcus aureus, E. coli, and Pseudomonas sp.) and anti-fungal (against Cladosporium cladosporioides) activity.

Chemical investigation of the MeOH-CH<sub>2</sub>Cl<sub>2</sub> (1:1) extract of the soft coral Sinularia abrupta collected at Kalkudah afforded two new closely related furano-cembranoid diterpenes (246) and (247). The structures of these compounds were deduced on the basis of their spectral data.



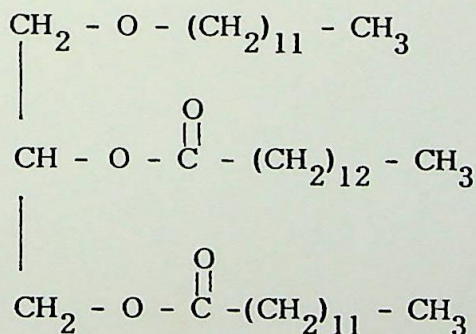
Chromatographic separation of the MeOH-CH<sub>2</sub>Cl<sub>2</sub> (1 : 1) extract of the soft coral Sinularia crispa collected at Unawatuna yielded 1-O-octadecyl glycerol (batyl alcohol) (248) which showed potent anti-bacterial activity against Pseudomonas sp.



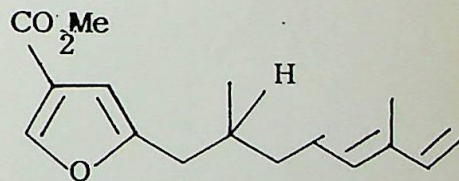
(248)



A specimen of the soft coral Sinularia abrupta collected from Unawatuna, afforded two bio-active constituents ; a diacyl glyceryl ether (249) and the furano-sesquiterpene, methyl (5', E) -5-(2', 6'-dimethylocta-5', 7'-dienyl) furan - 3 - carboxylate (44).



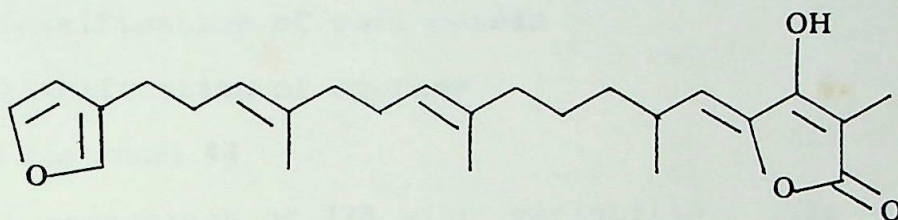
(249)



(44)

Activity directed fractionation of the CHCl<sub>3</sub> extract of an unidentified sponge collected at Wellawatta

furnished two furano-sterpenes, which showed strong anti-bacterial activity against Staphylococcus aureus. One of them was identified as variabilin (228).



(228)