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Leucinostatin B2 - an antimicrobial peptide from a marine derived fungus

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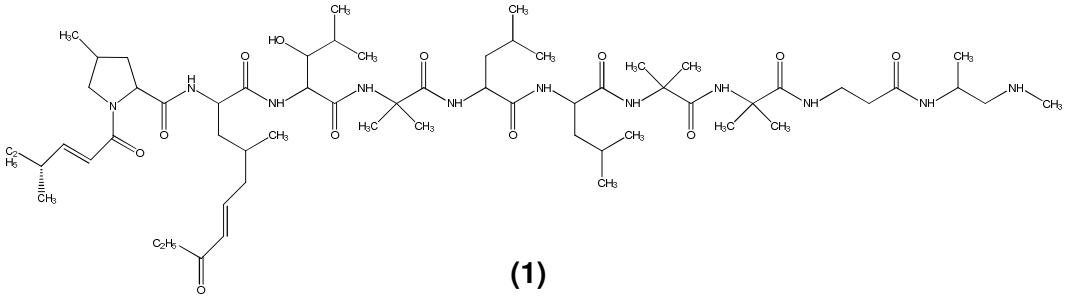
Oceans cover nearly a three-quarter of the earth's surface and are inhabited by a blend of various microbes including bacteria, cyanobacteria, microalgae and fungi. These microorganisms, particularly the marine fungi, have become an important source of pharmacologically active metabolites often with novel structural features. The current study reports the isolation and characterization of the principal bioactive compound, leucinostatin B2 **(1)**, from a laboratory culture of a marine derived fungus (RJA 4032) isolated from marine sediments of Georgia Strait, British Columbia, Canada.



(1)

The crude ethyl acetate extract of RJA 4032 fungal strain grown on marine medium 1 was purified by sequential bioassay guided fractionation methods using first Sephadex LH 20 (methanol), then Silica gel chromatography (5% ethyl acetate: hexane to 100% methanol) and finally reversed phase high performance liquid chromatography (acetonitrile:water, 1:1) to isolate the principal biologically active secondary metabolite, leucinostatin B2 - a nine-residue linear peptide. The structure of the compound was confirmed by the comparison of mass and NMR spectral data with the reported values for leucinostatin B2 and B. Leucinostatin B2 was active against Gram positive Methicillin Resistant *Staphylococcus aureus* (MRSA, ATCC 33591), *Bacillus subtilis* (UBC 344) and the fungus *Candida albicans* (ATCC 90028) and inactive against the Gram negative *Escherichia coli* (UBC 8161) and *Pseudomonas aeruginosa* (ATCC 27853) at 40 µg/disc. This study confirms that marine fungi are a promising source of bioactive natural products.

Keywords: Antimicrobial, fungus, leucinostatin, marine, peptide

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