

Comparison of antibacterial activity in methanol extract of sea cucumber (*Holothuria leucospilota*) and sponge *Niphates furcata* from Hengam Island, Persian Gulf

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Abstract

Most of the marine invertebrates same as sponges and sea cucumbers which provide secondary metabolites with pharmacological application. In this study, antibacterial activities of methanol extracts of sea cucumber *H. leucospilota* and sponge *N. furcata* were assessed by Bacterial Broth Dilution Methods against strains of gram positive and gram negative bacteria. Our results showed methanol extract of *N. furcata* was active on Gram-positive and gram negative bacteria. The Minimum Bacterial Concentration of Method extract of *N. furcata* was 5 mg/ml for *Bacillus subtilis spizizenii*, 10 mg/ml for *Staphylococcus aureus aureus* and *Bacillus cereus*, 30 mg/ml for *Escherichia coli* and 20 mg/ml for *Serratia marcescens*. But methanol extract of *H. leucospilota* did not show good activity against these bacteria. The Minimum Inhibitor Concentration of Method extract of sea cucumber was 30 mg/ml for *Bacillus subtilis spizizen* and *Bacillus cereus*, 10 mg/ml for *Staphylococcus aureus aurous*, 30 mg/ml for *Escherichia coli* and 10 mg/ml for *Serratia marcescens*. The Minimum Bacterial Concentration of Method extract of *H. leucospilota* was 40 mg/ml just for *Staphylococcus aureus*. Methanol extract of *N. furcata* in comparison with *H. leucospilota* had better activity against bacteria; therefore, secondary metabolite solutions in methanol extracts of *N. furcata* contain components with antibacterial properties and can be used as antibiotics products.

Keywords: Sponge, Sea cucumber, Biological activity, Secondary metabolites, Hengam Island, Persian Gulf