

## **Seawater dependency of marine actinomycetes for antioxidant and antimicrobial properties**

### **Abstract**

Objective: This study was done to examine the seawater dependency of marine actinomycetes in the production of its bioactive secondary metabolites. Methods: A total of 100 marine actinomycetes strains were isolated from marine sponges collected within the conserved sea area of Sipadan Island. All of the strains were fermented in mannitol-peptone broth with the presence and absence of seawater prior to the antimicrobial and DPPH assay. Results: The data from DPPH assay showed that 22 strains have antioxidant properties (IC<sub>50</sub> in the range of 56.3µg/ml to 99.1µg/ml) in the presence of seawater and 15 strains have antioxidant properties (IC<sub>50</sub> in the range of 82.6µg/ml to 99.4µg/ml) in the absence of seawater. On the other hand, the presence of seawater during fermentation has induced the production of antimicrobial compounds of 31 strains with inhibition zone ranging from 8mm to 19mm. In contrast, without seawater, only 22 strains were able to exhibit antimicrobial properties with inhibition zone ranging from 8mm to 11mm. Conclusion: The data from both assays showed that seawater indeed played an important role in the production of the antioxidant and antimicrobial compounds from marine actinomycetes.