

Screening for Antibacterial Potential of Marine Algae Extracts from West Coast of Sri Lanka

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Marine algae are produced wide variety of bioactive compounds and some of them can be used to development of antibacterial novel drugs. The present study was aimed to evaluate antimicrobial activity of some marine algae extracts from west coast of Sri Lanka. Pure cultures of *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Enterococcus faecalis* and *Pectobacterium carotovorum* were used as the test microorganisms for antibacterial testing. Marine algae such as *Ulva prolifera*, *Chaetomorpha antennina*, *Cladophoropsis sundanensis*, *Sargassum crassifolium*, *Asteronema breviarticulata*, *Chnoospora minima*, *Gracilaria multipartita*, *Gracilaria folifera*, *Gracilaria hikkaduwendensis*, *Rhodopeltis* sp., *Grateloupia lithophila* and *Laurencia natalensis* were collected from Kalpitiya sea coast. They were freshly ground and 25 g of each fresh algal sample was extracted in 50 ml of distilled water, methanol, acetone, diethyl ether separately and concentrated to 0.5 g/ml following solvent extraction at 30 °C. The test bacteria of 10⁸ CFU/ml were introduced and uniformly spread on the surface of Muller Hinton agar plates separately and followed standard agar –gel diffusion inhibition procedure. After placing 25 µl of extracts into each well, plates were incubated at 37 °C and 30 °C respectively for 24 hours and the diameter of the growth inhibition zone around the wells were measured. Comparisons were performed using one-way ANOVA followed by Duncan multiple-range test. It was revealed that the all tested extracts of *C. minima* showed antibacterial activity against *S. aureus* and all extracts of *G. folifera* against *E. faecalis*. Methanolic, acetone and diethyl ether extracts of *G. hikkaduwendensis* inhibited the growth of *S. aureus*. Further, methanolic extracts of *A. breviarticulata*, *S. crassifolium* and *U. prolifera* showed inhibitory effect against all tested bacterial species. Finally, it can be concluded marine algae from Kalpitiya coast of Sri Lanka are potential sources of bioactive compounds and should be investigated for identifying natural antibiotics.

Keywords: Marine algae, Antibacterial activity, Agar- gel diffusion, Growth inhibition zone