ANTIMICROBIAL ACTIVITY OF SELECTED MARINE PLANTS IN SOUTH WEST COAST OF SRILANKA

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ABSTRACT

Natural products from marine plants are known to have a variety of biological properties including antimicrobial activity. Even though these activities are well known, only a limited number of studies have assessed the antimicrobial properties of extracts from marine vegetation in Sri Lanka. To address this issue, the antimicrobial activity of extracts from selected algae and a seagrass species were tested. Samples were collected from the Barberyn reef off Beruwela coast and beach rocky platforms in Hikkaduwa. Using different solvents (chloroform, methanol, and water) natural products were extracted from four macroalgae species; *Ulva pertusa, Gracilaria salicornia, Gracilaria hikkaduwensis* and *Padina minor,* and a seagrass species *Cymodocea serrulata.* The antimicrobial activity of each extract was assayed by using agar well diffusion and agar disc diffusion method against two pathogenic bacteria *Staphylococcus aureus (*ATCC 29213) and *Escherichia coli* (DS 5α) and one yeast species *Candida albicans* (Bench culure) Testing was carried out for varying quantities of extracts (1 mg, 2 mg and 5 mg for disc diffusion; 5 mg, 10 mg and 20 mg for well diffusion). The antimicrobial activity of extracts was comparable with Kanamycin and fluconazole which were used as positive controls for antibacterial and antifungal activity respectively. Methanol and chloroform extracts of *C.serrulata* and *G.hikkaduwensis* showed antibacterial activity against *S.aureus.* Chloroform extract of *U.pertusa* showed antimicrobial activity against *S.aureus* and *C.albicans.* Additionally, chloroform extract of *C.serrulata* gave positive results against *C.albicans*. The maximum antibacterial activity was observed in the methanol extract of *C.serrulata* of 11 mm and minimum activity was 0.33 mm observed in chloroform extract of *G.hikkaduwensis* against *S.aureus*. Water extracts did not show antimicrobial activity. The results from this study confirm antimicrobial activity in *C.serrulata*, *U.pertusa* and *G.hikkaduwensis* found in Sri Lanka. Further research is needed to identify the individual compounds responsible for antimicrobial activity, which may in turn lead to developing therapeutic drugs from locally available marine vegetation.

Key words: antimicrobial activity, seaweed, bioactive, solvent extracts