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Abstracts

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Culture-Dependent Characterization of Marine Bacteria from Ussangoda Coast, Sri Lanka

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Marine bacteria play a vital role in marine ecosystem structure and ocean biogeochemistry. Ussangoda has identified as a serpentinite site, situated along the Southern coastal zone of Sri Lanka. In the past, few studies have focused on biodiversity and soil chemistry of this unique habitat. However, marine bacterial diversity in the Ussangoda coast is largely unexplored. Thus, the present study was conducted to isolate and identify marine bacteria in Ussangoda coast. Water, sand and soil samples were collected from 14 sites of the beach which were located approximately 1 m distance representing foreshore, shore line, backshore and upland. Bacteria were isolated by inoculating a 10 µl of each water sample, soil and sand suspension into tryptone soya agar, nutrient agar (NA), and seawater nutrient agar (SNA) and were incubated at 27 ± 2 °C for 3 days. Pure cultures were obtained after 1-2 consecutive sub-culturing on to fresh media plates by streaking. In order to obtain halophilic bacteria, isolates were inoculated into saline nutrient agar media with the concentrations of 10% and 20% of NaCl for moderate halophiles and extreme halophiles respectively and were incubated at 27 ± 2 °C for 7 days. 198 bacterial pure cultures were initially isolated and among them 152 were Gram-positive bacteria (76.8%). Based on colony morphology and Grams' staining, bacterial isolates were identified as *Bacillus, Staphylococcus, Micrococcus, Pseudomonas, Klebsiella, Escherichia coli* and *Stenotrophomonas,* which have been previously reported in coastal zones of other countries. Among the tested 102 isolates, 35 isolates (34%) were reported as moderately halophilic and 14 isolates (13%) were reported as extremely halophilic bacteria. Halophilic bacteria were recorded from shoreline as well as in the upland soil and it may be due to the soil chemistry of the area. Bacterial isolates should be further confirmed by the 16S rDNA sequencing to confirm their identity. This study provides foundational data on the microbial diversity of the Ussangoda coast and further studies are needed to identify the association of microbial community structure with the environmental factors in this region.

Keywords: Marine bacteria; Ussangoda coast; Moderately halophilic bacteria; Extremely halophilic bacteria; Gram's staining

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