

A preliminary study on the antibacterial activity of marine Sponges from East Coast of Sri Lanka

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Abstract

Reef habitats are widespread within the coastal waters of Sri Lanka. The biodiversity of reefs are not well known, especially the large number of invertebrates present on coral reefs. However there is very little taxonomic work and other information available on reef and reef associated invertebrates such as sponges, tunicates and soft corals. A number of marine sponges and tunicates are potential sources of new antibiotics and other drugs. In Sri Lanka, none of the sponges, soft corals, tunicates are utilized at present.

Marine sponges were collected from sea off the east coast and extracted by ethanol and ethyl acetate. The extracts were purified using activated charcoal and concentrated using rotavapour. After initial screening, four extracts were selected from different sponge samples tentatively identified as species 1, 2, 3 & 4. Their antibacterial activity were quantified by measuring the diameters of the zones of inhibitions obtained with the use of pure cultures of *Salmonella albony*, *Escherichia coli*, *Staphylococcus aureus*, *Enterobacter aerogenus* and *Bacillus subtilis*. The activity was compared against 0.1ppm Chloramphenicol and zone of inhibition values were compared.

Extracts 1 and 2 showed limited activity against *Enterobacter aerogenus*, *Staphylococcus aureus* and *Bacillus subtilis*. Extracts 3 and 4 showed highest activity against almost all bacteria. Ethanol extract of sponge no 3 showed 14 mm inhibition zone against *S. albony* and *E. coli*, 45 mm against *S. aureus*, 30 mm against *B. subtilis* and 22 mm against *E. aerogenus*. Ethyl acetate extract of the sponge showed slightly less activity than ethanol extract. Extracts of sponge no 4 also showed 11, 7, 30, 15 and 16 mm inhibition against *S. albony*, *E. coli*, *S. aureus*, *B. subtilis* and *E. aerogenus* respectively.

The results indicates the potential of marine sponges as a source of novel antibiotics.

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