

Antibacterial activities of endophytic fungi isolated from mangrove plants in the Negombo lagoon, Sri Lanka

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Mangrove endophytic fungi are suspected to be a rich source of structurally unique and biologically active metabolites with great potential for anti-microbial and cytotoxic activities. However, Sri Lankan mangrove ecosystem is a largely unexplored source for endophytic fungi. Therefore the objective of the current study was to isolate endophytic fungi from several mangrove plants from Negombo lagoon and investigate their antibacterial activities.

Leaves and bark parts from nine mangrove plants were collected, surface sterilized and placed on five types of nutrient media for isolation of endophytes. The endophytic fungi which emerged from the tissues were transferred onto PDA dishes and sequential sub culturing were done until pure cultures were obtained. The ethyl acetate crude extract of the pure cultures were tested against two Gram positive bacteria *Staphylococcus aureus*, *Bacillus subtilis* and two Gram negative bacteria *Escherichia coli*, *Pseudomonas aeruginosa* at 200 µg/disc by agar disc diffusion method. Antibacterial activity was categorized into low, moderate or high depending on the diameter of the inhibition zone.

In total 32 endophytic fungi were isolated and tested for antibacterial activities. Ten out of 32 isolates exhibited low or moderate antibacterial activities against at least one tested bacteria. Endophytic fungal isolates GPL 1.1 and GPL 1.2 from the leaves of *Nypha fruticans* and RAB 2.2 from the bark tissues of *Rhizophora apiculata* showed moderate antibacterial activities. GPL 1.2 was identified as an *Ascomycete* sp. while RAB 2.2 was identified as a *Gibberella* sp. Accordingly we can conclude that metabolites of endophytic fungi isolated from mangroves in the Negombo lagoon are a potential source of bioactive compounds.

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