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SCREENING ANTI-BACTERIAL ACTIVITY OF ENDOLICHENIC FUNGI COLLECTED FROM NEGOMBO LAGOON, SRI LANKA

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From the ancient past, natural products have been in use to fulfill a variety of human needs, from sustenance to pharmaceutical necessities. With the discovery of Endolichenic fungi (ELF) as a novel source with prominent bioactivities in recent years, a new trend has been created to explore more about these fascinating organisms, which live inside the lichen thallus asymptomatically. ELF isolated from the lichens collected from mangrove plants in Negombo lagoon's Kadol kale area (Latitude: 7°11'50.28" Longitude: 79°50'42") were identified using molecular techniques and were subjected to anti-bacterial assay. Ethyl acetate crude extracts of 18 identified endolichenic fungal strains were obtained and their anti-bacterial activities were tested against aerobic bacterial species *Escherichia coli*, *Bacillus subtilis* and *Staphylococcus aureus*. The assay was carried out using agar well diffusion method using 100 µl of the extracts (5 mg/ml) with Azithromycin as the positive control. The inhibition zone diameters (in cm) against *E. coli* were 1.2 for *Phanerochaete chrysosporium*, 1.2 for *Xylaria feejeensis*, 0.9 for *Gelasinospora seminuda*, 0.9 for *Chaetomium globosum* and 1.5 for *Curvularia lunata* while Azithromycin as the positive control showed a diameter of 2.1. The inhibition zone diameters against *B. subtilis* were 1.0 for *Cochliobolus* sp., 1.0 for *P. chrysosporium*, 1.8 for *X. feejeensis*, 1.7 for *G. seminuda*, 1.2 for *C. globosum*, 1.5 for *Hypoxylon lividipigmentum*, 2.0 for (*Pennicillium* sp), 2.2 for *C. lunata*, 0.9 for *Lasiodiplodia theobromae* and 2.4 for positive control. The inhibition zone diameters against *S. aureus* were 1.1 for *P. chrysosporium*, 2.2 for *X. feejeensis*, 1.0 for *G. seminuda*, 1.0 for *Chaetomium globosum*, 2.0 for (*Pennicillium* sp), 1.8 for *Curvularia lunata* and 2.2 for positive control. Out of the 18 fungal strains, 9 showed significant activity against the tested bacterial species while *Endomelanconiopsis endophytica*, *Neofusicoccum parvum*, *Neofusicoccum occulatum*, *Hypoxylon anthochroum*, *Cytospora xylocarpi*, *Cerrena* sp., *Schizophyllum commune*, *Daldinia eschscholtzi*, *Nodulisporium* sp. fungal strains did not show any inhibition. Further studies will be conducted to isolate compounds responsible for these inhibitions.

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