427/D

Antimicrobial evaluation of endophytic fungi inhabiting *Leucas zeylanica* L. (Lamiaceae) endemic to Sri Lanka

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The emergence of resistant bacterial species is presently a global issue that needs urgent attention. In addition, the numbers of immuno-compromised individuals who are susceptible to fatal systemic fungal infections are on the rise. Thus, there is a compelling need for the discovery of new clinically effective antimicrobial agents. Endophytic fungi are plant symbiotic microbes and they are presently emerging as a valuable and an almost inexhaustible source for the discovery of new antimicrobial substances. Sri Lanka is considered as a biodiversity hotspot with a high degree of endemism. Endophytic fungi inhabiting the endemic plant species of Sri Lanka thus represent a unique and almost completely uninvestigated resource for the discovery of new bioactive natural products.

In the present study 16 varieties of endophytic fungi were isolated from surface sterilized leaves, stems and roots of the endemic medicinal plant *Leucas zeylanica* using dilute malt yeast agar medium. Each fungal isolate was cultured on 06 PDA plates for 04 weeks and the culture medium together with the fugal mycelium was extracted into ethyl acetate and concentrated under reduced pressure to obtain the crude organic extracts. Anti-bacterial bio assays of crude fungal extracts were performed using the disc diffusion method on Muller Hinton media against *Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli* and *Bacillus subtilis* (gentamycin as positive control, methanol as negative control) at 300 µg/disk.The anti-fungal bioassays were performed using the disc diffusion method against *Fusarium oxysporum, Rigidoporus microporus, Colletotrichum gloeosporioides* and *Aspergillus niger* (ketaconazole andItraconazole as positive control, methanol as negative control) at 300 µg/disk. The results of antibacterial bioassays indicated that 08 fungal extracts out of the 16 inhibit the growth of at least one bacterium tested. Seven of these extracts inhibited the growth of *S. aureus* while three were active against *B. subtilis*, and two against *P. aeruginosa*. None showed any activity against *E. coli*. In the antifungal bioassays 11 of the 16 extracts were inactive against all 04 fungal species tested. Four extracts were active against *R. microporus,* while 02 extracts and 01 extract were active against *F. oxysporum andC. gloeosporioides* respectively. None of the extracts were active against *A. niger.*

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