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Evaluation of the antibacterial activity of the endophytic fungal extracts of *Osbeckia octandra L. (Melastomataceae),* an endemic plant of Sri Lanka

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Bacterial and parasitic diseases are the second leading cause of death worldwide. World Health Organization (WHO) has identified emerging and increasing resistance to antibiotics as a serious threat to human health in both developed and developing countries. In the presence of infections caused by antimicrobial resistant pathogenic bacteria such as *penicillin-resistant Streptococcus pneumoniae*, *multi-resistant Salmonellae spp.*, *cephalosporin-resistant Escherichia coli*, *Methicillin-resistant Staphylococcus aureus* (MRSA), conventional antibiotics have become obsolete. Thus new antimicrobial compounds are desperately needed. Endophytic fungi gained lot more attention due to their potential for synthesizing various bioactive secondary metabolites that may be used as therapeutic agents.

In the present study, the antibacterial activity of endophytic fungi isolated from leaves and stem-bark tissues of *Osbeckia octandra L. (Melastomataceae)* found in the wet-zone of Sri Lanka were investigated. Surface sterilized leaf and bark tissues were placed on Potato Dextrose Agar (PDA) medium and pure cultures of endophytic fungal isolates which emerged were grown on PDA for 21-28 days at 28 ^{0}C. Altogether 18 morphologically different endophytic fungi were isolated and their crude ethyl acetate extracts were tested for antibacterial activity by the disk diffusion method at 400 µg/disk against *Escherichia coli* (ATCC 25922), *Pseudomonas aeruginosa* (ATCC 27853), *Bacillus subtilis* (ATCC 6633) and *Staphylococcus aureus* (ATCC 25928). Gentamicin (10 µg/disk) and 100% methanol were used as the positive and the negative control respectively. Four endophytes displayed activity against *S. aureus* while five endophytes displayed activity against *P. aeruginosa.* Only one endophytic fungus was active against *E. coli* whilenone inhibited *B. subtilis.*These results indicate that some endophytic fungi from *Osbeckia octandra* plant are a potential source of antibacterial agents.

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