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**Antimicrobial activities of endophytic fungi isolated from the aquatic plant
Nymphaea nouchali(Nymphaeaceae) endemic to Sri Lanka**

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There are a number of compelling reasons for the discovery of new and more effective clinically useful antibacterial and antifungal agents. Endophytic fungi which reside symbiotically inside plants are known to produce vast numbers of novel bio-active secondary metabolites and are a promising source for the discovery of new antimicrobial agents. The endophytic fungi of the endemic flora of Sri Lanka is almost completely uninvestigated for their antimicrobial potential and thus becomes an attractive source in the search for new antimicrobial agents.

In the present study, the organic extracts of 24 isolates of endophytic fungi isolated from surface sterilized leaves, stems, sepals and petals of the endemic plant *Nymphaea nouchali* were tested for their antimicrobial activities. Each fungal isolate was cultured on Potato Dextrose Agar plates for 03-05 weeks and culture mycelia together with the media were extracted into ethyl acetate and concentrated under reduced pressure to obtain crude organic extracts. Anti-bacterial bioassays of crude fungal extracts were performed using the disc diffusion method on Muller Hinton media against *Staphylococcus aureus* (ATCC 25923), *Bacillus cereus* (ATCC 11778), *Pseudomonas aeruginosa* (ATCC 9027) and *Escherichia coli* (ATCC 35218) at 300 µg/disc (gentamycin was the positive control). The bacteria concentrations were equal to the 0.5 McFarland standards. The results showed that 15 out of the 24 extracts were inactive against all tested bacterial strains. Of the active 09 extracts only two (RDNM-01 and RDNM-18) were active against all four bacterial strains tested and the remaining 07 were active only against the Gram positive bacteria. The two extracts, RDNM-01 and RDNM-18 were active even at 50 µg/disc against all four bacterial strains tested. Of the 07 extracts which were active against Gram positive bacteria at 300 µg/disc only 03 remained active at 50 µg/disc. Anti-fungal bioassays were performed using the disc diffusion method against *Fusarium oxysporum*, *Rigidoporus microporus*, *Colletotrichum gloeosporioides* and *Aspergillus niger* at 300 µg/disc (Ketaconazole and Itraconazole were used as the positive control). Of the 24 extracts, only 04 extracts including RDNM-01 and RDNM-18 were active against *R. microporus* and same two extracts were also active against *F. oxysporum*. None of the extracts were active against *A. niger* and *C. gloeosporioides*.

Keywords: Antimicrobial, disc diffusion, endophytic fungi, *Nymphaea nouchali*

Acknowledgement: Financial assistance by the NSF Grant RG/2012/NRB/01.