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Antimicrobial activity of macrofungi collected from forest reserves in Dambulla and Mahiyanganaya areas

N W Gunasekara[1]*, R L C Wijesundera[1], C M Nanayakkara[1] and E D de Silva[2]
[1] *Department of Plant Sciences, University of Colombo. Colombo 03*
[2] *Department of Chemistry, University of Colombo. Colombo 03*

Antimicrobial properties of macrofungi are numerous. Extracts of fruiting bodies of various macrofungi have shown activity against a range of different Gram-positive, Gram-negative bacteria and fungi. A variety of macrofungi found in Sri Lankan forests are not yet investigated for their antimicrobial value. The present study aims to investigate macrofungi in Sri Lankan dry zone forests for their antimicrobial activity.

In the present study, total crude solvent extracts of fruiting bodies of macrofungi collected from forest reserves in Dambulla and Mahiyanganaya areas were preliminary screened against two Gram-positive bacteria (*Bacillus subtilis, Staphylococcus aureus*), two Gram-negative bacteria (*Escherichia coli and Pseudomonas aeruginosa*) and three plant pathogenic fungi (*Rigidoporus microporus, Colletotrichum acutatum and Curvularia clavata*) for their antimicrobial activity. Total crude solvent extracts of macrofungi were obtained by extracting fruiting bodies of dried and powdered macrofungi samples with MeOH, a 1:1 mixture of MeOH:CH_2Cl_2 and finally with CH_2Cl_2. It was filtered through a Whatman No.1 filter paper and evaporated under reduced pressure in a rotary evaporator. The anti-bacterial test was carried out by the disc diffusion method and the antifungal test was carried out by the food poison method. Two macrofungi *Anthrocophyllum archeri* and *Serpula* sp.inhibited the growth of *S. aureus* at 300 µg resulting in clear zones of 12 mm and 14 mm respectively in the antibacterial assay. In the antifungal assay *Boletus* extract reduced the colony diameter of *R. microporus* by 24% after 3 days and 23% after 4 days at 400 ppm. This suggests a fungi-static effect rather than an inhibition effect. *Ischnoderma resinosum*, *Polyporus varius* and *Agaricus* sp. at 400 ppm also had a similar fungi-statistic effect. Hence the above fungi have antimicrobial or microbial static effect and are potential sources to develop new bioactive compounds.

Keywords: Macrofungi, anti-bacterial activity, anti-fungal activity

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niranjan.wg@gmail.com Tel: 041 7900167