BIOASSAY DIRECTED ISOLATION OF ANTIBACTERIAL AND ANTIFUNGAL COMPOUNDS FROM FUNGI

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Thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF PHILOSOPHY

of the

UNIVERSITY OF COLOMBO, SRI LANKA.

OCTOBER - 1999

ABSTRACT

Extracts from twenty one basidiomycete species was screened for their antibacterial and antifungal activity.

The extract of *Volvariella volvacea* showed very promising activity against *E. coli*. Unfortunately this extract did not show significant activity against other bacterial species, namely *Staphylococcus, Streptococcus, Pseudomonas* and *Klebsiella*. The extracts of *Volvariella volvacea* and *Pleurotus ostreatus* possess antifungal activity against the fungus *Rhizoctonia solani*.

The non-polar fraction of the extracts of *Volvariella volvacea* contained saturated / unsaturated triglycerides, fatty acids and small amounts of phthalates. The major fatty acid component was identified as linoleic acid.

The polar fraction of the extracts of *Volvariella volvacea* contained monosaccharides, nucleosides (uridine, adenosine) and deoxyascorbic acid.

Volvariella volvacea and *Pleurotus ostreatus* were grown on straw compost and oyster compost respectively. The compost samples were tested for the presence of contaminating fungal species. During a previous project, *Trichoderma viride* which was identified as a contaminating fungus, was grown in a liquid medium and the dichloromethane extract of the culture filtrate of *Trichoderma viride* shown to contain furyl hydroxy methyl ketone. The major compound isolated from the methanol extract of the culture filtrate of *Trichoderma viride* was identified as maltose. Another furan, 5-hydroxymethyl furfural, was also isolated from the above extract.

Trichoderma harzianum was isolated from another compost sample. This was also grown in a liquid medium and the extracts of the culture filtrate and fungal mat of *Trichoderma harzianum* was screened for antibacterial activity.

The dichloromethane extract of the fungal mat showed comparatively high activity against *Staphylococcus*, *Streptococcus* and *Klebsiella*. This extract of the fungal mat was found to contain a mixture of triglycerides.