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Leaf litter fungal community of Popham Arboretum

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Leaf litter fungi inhabit a unique niche in an ecosystem. They are important in nutrient cycling and are known to possess interesting metabolites. Moreover, habitat destruction and climatic changes pose threats for global biodiversity. Hence, documenting the biological wealth of a country is of utmost importance. Being a tropical country Sri Lanka has a rich fungal biodiversity although very little work has been done on them. The fungi colonize unique niches in an environment performing diverse roles. Leaf litter fungi are of utmost importance in soil nutrient cycling and hence form an integral part of any ecosystem. Yet this wealth of fungi has not been explored in Sri Lanka. Hence, as a preliminary step towards assessing leaf litter fungal biodiversity of Sri Lanka, the present study was conducted at the Popham Arboretum, Dambulla. Leaf litter was collected from 22 different microhabitats, selected based on topography, soil moisture content and associated tree types. Isolation of leaf litter fungi was carried out employing either direct plating of leaf litter pieces on water agar medium or transferring spores obtained after incubating moistened leaf litter at room temperature. Hyphal tips resulting from the above cultures were transferred to a fresh potato dextrose agar medium. Resulted fungal colonies were coded for convenience according to their colony characters such as colony texture, colony colour, and colour of the reverse plate. A total of 65 different species were isolated and stock cultures were prepared by adding mycelial discs into sterile distilled water for long term storage to ensure the genetic stability of the resulting fungi. Preliminary taxonomical grouping of the fungi was done by observing micro morphological and reproductive characteristics on slide cultures. Further identification was based on taxonomic keys illustrated in Fungi and Food Spoilage by Pitt and Hocking (1985). Growth and colony characteristics on different media (CYA and G25N), conidispore and hyphal characteristics, presence or absence of ascospores and arthroconidia were noted. For the identification of fungi which are not included in the identification key, internet based literature was used. The 25 fungal species identified include 6 *Penicillium* species, 5 *Trichoderma* species, 3 *Aspergillus* species and 1 *Neosartorya* spp. (telomorph of genus *Aspergillus*), 2 *Mucor* species, *Cunninghamella bertholletiae*, *Curvularia affinis*, *Fusarium solani*, 1 *Gliocladium* spp., 1 *Wallemia* spp. and 1 *Arthrinium* spp. Confirmation of the identity of these fungi will be conducted using molecular methods.

Keywords: Popham arboretum, leaf litter, fungal biodiversity

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