Endolichenic fungal diversity in different ecosystems of Sri Lanka

B. T. S. D. P. Kannangara[1], P.A. Paranagama[2] and R. S. C. G. Rajapaksha[1]

Department of Botany, University of Kelaniya[1]
Department of Chemistry, University of Kelaniya[2]

Abstract

Studies on lichens in Sri Lanka revealed that a marked variation exists in the distribution and diversity of lichens with change in elevation. In the last few years the interest in isolation and identification of endolichenic fungi has increased. Present study was carried out to evaluate the diversity and occurrence of endolichenic fungi in some of the dominant lichens in three different geographical regions (Hakgala, Knuckles and Pidurangala) of Sri Lanka.

Lichens, *Usnea*, *Pseudocypellaria* , *Parmotrema*, *Leptogium* and *Lecanora* were collected from Hakgala, Knuckles and Pidurangala forests randomly in previously demarcated five study plots. Fungal isolations were carried out using the surface sterilization method and were identified following standard identification keys and molecular techniques. Mean percentage frequencies of occurrence of the isolated fungi were calculated using standard equations.

Endolichenic fungi at significantly higher frequencies were isolated from the lichen *Usnea* located at both Hakgala and Knuckles regions. *Phoma* sp.1 was isolated from lichens *Parmotrema* and *Leptogium* at the highest percentage frequencies of 17% and 21% from Pidurangala forest region. From *Usnea* at Knuckles area, *Daldinia eschscholzi* was obtained at the highest percentage frequency of occurrence (21%). Present investigation, opens avenues for further studies to investigate the role of endolichenic fungi within the lichen thalli and their bioactivity.

Introduction

Lichens are stable self-supportive associations between a fungal partner (mycobiont) and an algal partner (photobiont). There are different species of (estimated 13,500 to 17,000) lichens, extending from the tropics to the Polar Regions. They may grow on barks, leaves, rock surfaces or any substrate where moisture available. They are common primary colonizers of stressful habitats (Nash, 1996). Lichens grow extremely slowly, often less than a millimeter per year, and some lichens thought to be among the oldest living things on earth (Nash, 1996).