

Occurrence of non-obligate microfungi inside lichen thalli

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Five corticolous lichen species (four foliose and one fruticose) and the leaf and bark tissues of their host trees were screened for the presence of asymptomatic, culturable microfungi. Four isolation procedures were evaluated to identify the most suitable one for isolating the internal mycobiota of lichens. A total of 242 isolates of 21 fungal genera were recovered from 500 thallus segments of the lichens. Different fungi dominated the fungal assemblages of the lichen thalli and the host tissues. An ordination analysis showed that there was little overlap between the fungi of the lichens and those of the host tissues even though, considering their close proximity, they must have been exposed to the same fungal inoculum. This is the first study that compares the microfungi assemblage associated with lichens with those occurring in their substrates. It indicates that lichen thalli, apart from their obligate mycobiont, could serve as an ecological niche for certain microfungi.

Keywords: Endolichenic fungi, endophytes, foliose lichens, fruticose lichens

Lichen thalli harbour, apart from their obligate symbiotic mycobionts, other fungi that are parasitic, commensals or saprobial (Hawksworth, 1982; 1983; Honegger, 1996). Attempts to culture the mycobiont of lichens are fraught with difficulties because of the presence of such fungi (Crittenden & al., 1995; Petrini & al., 1990). Although there are several studies on the primary mycobionts of lichens (Richardson, 1999), few studies have been made regarding culturable asymptomatic microfungi existing within the lichen thalli (Girlanda & al., 1997; Peršoh, 2002; Miadlikowska & al., 2004). To understand the role of lichens as niches for such fungi, we compared the fungal assemblages of five lichen species with the phellophytes (fungi occurring in the bark tissues) and foliar endophytes of their tree hosts. We also evaluated four procedures for isolating culturable asymptomatic microfungi (called endolichenic fungi by Miadlikowska & al., 2004) associated with the lichens.