

Tropical lichens mycobionts: after a decade of studied

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Abstracts

Mycobionts of tropical lichens have been poorly investigated despite their difficulties of isolation and slow growth rate. For over a decade lichen thallus from various types of ecosystems mainly from Khao Yai National Park explored. The voucher specimens are maintained in the herbarium of the Lichen Research Unit, Ramkhamhaeng University (RAMK). Freshly collected specimens were used for mycobiont isolation by the ascospore discharge technique. Spore germination and colony development were observed subsequently. It was found that not all discharged ascospores germinated and not all germinated ascospores developed to mycobiont colonies. The behavior of ascospores germination and colonies development were also observed by Light and Scanning Electron Microscopy. Furthermore different media and conditions for growing mycobionts were investigated of which Malt-Yeast Extract was superior over the others for supporting growth. Mycobionts on solid media formed compact colonies, containing balloon hyphae and anastomoses, in this condition they also exhibited slow growth rate. The cultivation of mycobionts in liquid media was also explored using different methods for growth stimulation and metabolite production. High speed shaking condition was not appropriated for culturing of tropical mycobionts. Cultivation of tropical lichen mycobiont on synthetic sponge in liquid media at slow speed shaking speed gave good cell mass, spinner flask systems at low speed of stirring was an alternative choice to study the effect of agitation. In addition, phylogenetic analyses from mycobionts of the family Trypetheliaceae were investigated and it was confirmed that at least nine *Trypethelium* species were presented in Thailand and the results from molecular analysis perfectly matched to morphological characteristics.

Key word: mycobionts, lichen, secondary metabolites, phylogenetics