

THE INFLUENCES OF RAINFALL ON SURVIVAL AND GROWTH OF CHLOROLICHENS AND CYANOLICHENS IN THE LOWER MONTANCE FOREST AT KHAO YAI NATIONAL PARK

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Abstract: Chlorolichens are lichens with green algae photobiont and cyanolichens are those having cyanobacteria. The former uses atmospheric water vapor, whereas the latter needs liquid water to stimulate photosynthesis. The objectives of this study were to investigate survival rates and patterns of growth of chlorolichens and cyanolichens influenced by rainfall. The investigations were conducted in the lower montane forest at Khao Yai National Park during March 2009 to February 2011. A total of 74 thalli consisting of 8 species were monitored. The results revealed 85 % (63/74) of the thalli survived following the 29 month period of observation. All thalli of both groups of lichens with diameters > 3 mm remained intact. Disintegration was observed only in small thalli, of which the chlorolichens had proportion of death less than the cyanolichens (10% and 40% respectively). All small thalli of the chlorolichens, which consisted of *Heterodermia microphylla*, *Parmotrema tinctorum* and *Parmotrema sancti-angelii*, survived throughout the observation period, whereas those of the cyanolichens lost 22-100% of the original small thalli. The greatest loss was noted in *Coccocarpia palmicola*. Average growth rates of chlorolichens (4.58 mm/year) and cyanolichens (4.60 mm/year) were indistinguishable. However, the rates varied greatly among groups and species accounted for 2.50-8.58 mm/year, with the highest and lowest values observed from the cyanolichens *Coccocarpia palmicola* and *Erioderma mollissimum*, respectively. Growth fluctuated among seasons and raised during and after rainy season. This study revealed that young thalli of chlorolichens and cyanolichens lichens responded differently to seasonal change. They might be sensitive to adverse environmental factors, whereas the older thalli of both groups are more tolerant.

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