

นิเวศวิทยาและการแพร่กระจายของไลเคนบนใบไม้ ณ อุทยานแห่งชาติเขาใหญ่

Ecology and Distribution of the Follicolous Lichens at Khao Yai National Park

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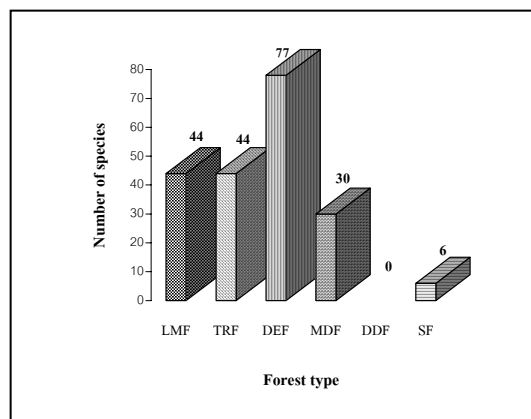
บทคัดย่อ: จากการเก็บตัวอย่างไลเคนบนใบไม้บนพืชที่มีต่อลำเลียง 61 ชนิด พื้นที่ป่า 6 ชนิด ได้แก่ ป่าดิบเขา ป่าดิบชื้น ป่าดิบแล้ง ป่าเบญจพรรณ ป่าเต็งรัง และป่ารุ่มสอง ณ อุทยานแห่งชาติเขาใหญ่ พบไลเคนทั้งหมด 97 ชนิด เป็นการพบครั้งแรกในประเทศไทย 81 ชนิด และคาดว่าจะป็นสายพันธุ์ใหม่ที่ยังไม่เคยมีรายงานที่ใดมาก่อน 4 ชนิด ป่าดิบแล้งพบจำนวนชนิดของไลเคนบนใบไม้มากที่สุด คือ 77 ชนิด ชนิดเด่นได้แก่ *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Chroodiscus parvisporus*, *Mazosia melanophthama*, *Porina karnatakensis*, *Porina rufula* และ *Sporopodium phyllocharis* รองลงมาเป็นป่าดิบชื้นพบ 44 ชนิด ชนิดเด่นได้แก่ *Byssoloma leucoblepharum*, *B. subdiscordans*, *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Opegrapha vegae*, *Porina conica*, *Porina karnatakensis* และ *P. rufula* และป่าดิบเขาพบ 44 ชนิดเช่นกัน ชนิดเด่น ได้แก่ *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Mazosia melanophthama*, *Porina karnatakensis* และ *P. rufula* ป่าเบญจพรรณพบ 30 ชนิด เป็นชนิดเด่น 6 ชนิด ได้แก่ *Byssoloma guttiferiae*, *Calenia depressa*, *Coenogonium dilucidum*, *Fellhanera rhabdophlli*, *Graphis* species 1 และ *Tricharia demonulinii* ป่ารุ่มสองพบเพียง 6 ชนิด ได้แก่ *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Porina karnatakensis* *P. rufula* และ *Sporopodium argillaceum* ส่วนป่าเต็งรังไม่พบชนิดของไลเคนบนใบไม้เลยเนื่องมาจากส่วนใหญ่เป็นไม้ผลัดใบ ไลเคนบนใบไม้ที่พบกระจายได้ดีและเป็นชนิดเด่นในทุกสภาพป่ามีสองชนิดได้แก่ *Porina kanatakensis* และ *P. rufula* ชนิดของไลเคนบนใบไม้ที่เป็นชนิดเด่นในแต่ละสภาพป่าสามารถใช้เป็นดัชนีบ่งชี้ชนิดของป่าและภูมิอากาศของป่าแต่ละชนิดได้

Abstract: Follicolous lichens were collected form 61 species of host plants at fifty collecting localities in six forest types at Khao Yai National Park. Ninety-seven species of the follicolous lichen were identified. About eighty-one species were known for the fist time in Thailand, and four of them are likely to be new species. The highest diversity occurred in the dry evergreen forest, which consists of 77 species. This forest is characterized by *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Chroodiscus parvisporus*, *Mazosia melanophthama*, *Porina karnatakensis*, *P. rufula*

and *Sporopodium phyllocharis*. The tropical rain forest has 44 species, which dominated by *Byssoloma leucoblepharum*, *B. subdiscordans*, *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Opegrapha vegae*, *Porina conica*, *Porina karnatakensis* and *P. rufula*. The lower montane forest or the found 44 species, characterize by *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Mazosia melanophthama*, *Porina karnatakensis* and *P. rufula*. The mixed deciduous forest has 30 species, dominated by *Byssoloma guttiferae*, *Calenia depressa*, *Coenogonium dilucidum*, *Fellhanera rhapsidophlli*, *Graphis* species 1 and *Tricharia demonulinii*. The secondary forest contains 6 species, characterized by *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Porina karnatakensis* *P. rufula* and *Sporopodium argillaceum*. The foliicolous lichen disappears form the dry dipterocarp forest because most of the trees are deciduous. *Porina kanatakensis* and *P. rufula* are only two species presented in the six forest types, and they are also the dominant species. The combination of dominant species of foliicolous in each forest can be used as bioindicator of forest type and its climate.

Methodology: After collection, leaves with foliicolous lichens were air dried at room temperature for herbarium preservation. Identification of the lichens to genus was based on morphology of the apothecia and sterile hair on the thallus. Anatomy of the thallus and fruiting body were studied by free hand section, with the aid of razor blade under the stereomicroscope. The section was then mount on slide with water for observation under the binocular microscope. Characteristics of apothecia and spore were recorded, and used for classification to species.

Results, Discussion and Conclusion: Ninety-seven foliicolous lichen species belonging to 30 genera and 17 families are now known from Khao Yai National Park. These occurred on 61 different phorophyte species. Eighty-one species are presently new records from Khao Yai National Park. The following 16 genera are also new to Thailand; *Aulaxina*, *Bacidina*, *Badimia*, *Bulbotrix*, *Calenia*, *Calopadia*, *Caprettia*, *Coenogonium*, *Dirinaria*, *Enterographa*, *Eugeniella*, *Graphis*, *Gyalectidium*, *Leptogium*, *Opegrapha*, *Tapellaria* and *Trichothelium*. Most of all the species in this report contained green algal photobiont belonging to *Trebouxia*, *Phycopeltis* and *Trentepohlia*. The foliicolous lichen species are composed of photobionts of species *Phycopeltis* 46%, followed by *Trebouxia* 34%, *Trentepohlia* 11% and *Cephaleuros* 8%. Only one species, *Leptogium cyanescens*, has a blue green cyanobacterium



species belonging to the genus *Nostoc*.

Figure 1 Number of foliicolous species in six forest types at Khao Yai National Park. LMF=Lower montane forest, TRF=Tropical rain forest, DEF=Dry evergreen forest

MDF=Mix deciduous forest, DDF=Dry dipterocarp forest, SF=Secondary forest

The highest number, seventy-seven species, occurred in the dry evergreen forest. Seven species dominants this forest, which are *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Chroodiscus parvisporus*, *Mazosia melanophthama*, *Porina karnatakensis*, *Porina rufula* and *Sporopodium phyllocharis*. The lower montane forest and the tropical rain forest rank the second highest biodiversity, each consisting of 44 species. Five dominant species of the lower montain forets are *Byssolecania hymenocarpa*, *Byssoloma subdiscordans*, *Mazosia melanophthama*, *Porina karnatakensis* and *P. rufula*. These species can be used to characterized this area, which has the highest altitude of all forest types, and with climatic differences from the other forests. The tropical rain forest is dominated by *Byssoloma leucoblepharum*, *B. subdiscordans*, *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Opegrapha vegae*, *Porina conica*, *Porina karnatakensis* and *P. rufula*. This forest has high diversity of leaf types and subsequently a highly diverse foliicolous community. In the mixed deciduous forest 30 species were recorded, and dominated by *Byssoloma guttiferæ*, *Calenia depressa*, *Coenogonium dilucidum*, *Fellhanera rhapsidophlli*, *Graphis* species 1 and *Tricharia demonulinii*. This forest area exhibits changes in shade since many leaves are lost in the dry season and only a few evergreen tree species have leaves during this period. Therefore, this is an important factor in limiting the distribution of foliicolous lichens. In the secondary forest foliicolous lichens were poorly represented with only the 6 species *Chroodiscus parvisporus*, *Fellhanera mastothallina*, *Mazosia melanophthama*, *Porina kanatakensis*, *P. rufula* and *Sporopodium argillaceum*. Species which are confined to secondary forest, particularly in regions where there are microclimatic differences to other forest, exhibit special chaacteristics. Therefore, foliicolous species found in this forest type are to become pioneer species and a good indication of anthropogenic disturbance. Whereas in the dry dipterocarp forest no foliicolous lichen was found, because most of the trees are deciduous.

Only two species, *Porina karnatakensis* and *P. rufula*, are presented in all forest types, and they are also dominant species. They distribute in six forest types at Khao Yai National Park. Dominant species of foliicolous lichens in each forest types can be used as bioindicator of forest types, climate and disturbances.

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