

ความหลากหลายทางชีวภาพของจุลไลเคนบนหินที่พบ ณ อุทยานแห่งชาติภูหินร่องกล้า ในประเทศไทย
BIODIVERSITY OF MICRO-SAXICOLOUS LICHENS AT PHU HIN RONG KLA NATIONAL PARK IN THAILAND.

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บทคัดย่อ: จุลไลเคนเป็นไลเคนแบบครัสโตส และพลาโคอิดที่เติบโตบนหิน ณ อุทยานแห่งชาติภูหินร่องกล้า จากการรวบรวมตัวอย่างตั้งแต่เดือนมกราคม 2546 ถึงธันวาคม 2548 ได้ 402 ตัวอย่าง พบจุลไลเคนบนหิน 4 ชนิด ได้แก่ หินทราย หินทรายปนหินกรวดมน หินกรวดมน และหินทรายแป้ง กระจายอยู่ในระบบนิเวศป่า 5 ประเภท ได้แก่ ป่าละเมาะเขาค้ำ ป่าดิบเขาสังคมไม้ก่อ-สนเขา ป่าดิบเขาสังคมไม้ก่อ ป่าดิบเขาค้ำ และป่าเบญจพรรณ นำมาวิเคราะห์จำแนกได้ 16 วงศ์ 23 สกุล 87 ชนิด ในที่นี้จัดเป็นชนิด ที่ยังไม่เคยมีรายงานมาก่อน 9 วงศ์ 10 สกุล 20 ชนิด และคาดว่าน่าจะเป็นไลเคนชนิดใหม่ของโลกที่ยังไม่สามารถจำแนกชื่อได้แน่นอน ซึ่งอยู่ในวงศ์ Trichotheliaceae.

Abstract: Micro-saxicolous lichens are crustose and placoid on rocks at Phu Hin Rong Kla National Park. Lichen sample were collected during January 2003 to November 2005. The total of 402 specimens on 4 kinds of rocks consisted of sandstone, conglomeratic sandstone, conglomerate, and siltstone in 5 forest types; lower montane shrub forest, lower montane oak-pine forest, lower montane oak forest, lower montane rain forest and mixed deciduous forest. The samples were identified into 16 families 23 genera 87 species. Twenty species was expected to be new record for Thailand. An unknown species in family Trichotheliaceae was probably a new species of the world.

Introduction: Phu Hin Rong Kla National Park is geographically and geologically different from other national parks in the Northern region. The park is borders of Phitsanulok, Phetchabun and Loie. The area is a vast plain of rock with cracks scattering in all ecoforest types. The geological features are those of Khorat group of sedimentary rocks, Phu Phan and Khok Kruat formation. Phu Phan formation consists of sandstone, conglomeratic sandstone and conglomerate. Almost all of Khok Kruat Formation is siltstone. Furthermore, the climate is similar to that at Phu Kra Dung and Phu Luang National Park. Lichens are abundant on rocks and called "saxicolous lichens" The rocks support Macro lichens are foliose and fruciose, Micro lichens are crustose and placoid.

Methodology: Micro-saxicolous lichen samples from rocks were collected, kept dry at room temperature, and prepared for herbarium preservation. Identification of samples were performed following methods of (1), (2), (3), (4).

Result, Discussion and Conclusion: The taxa of 402 lichen samples of 4 kinds of stones at Phu Hin Rong Kla National Park is shown in table 1, which consists of 16 families, 23 genera, and 87 species. Most species were found on sandstone and conglomeratic sandstone

because of their softness, high porosity, small grains, and verrucolose surface. Lichen thalli grew cover on surface and penetrate in the pores of grains. Thalli of *Baeomyces*, *Buellia*, and *Caloplaca* were found to penetrate deep into the sandstone matrix up to 1-2 mm. Dominant species on sandstone and conglomeratic sandstone are *Graphina*, *Diploschistes* and *Lecanora*. Three species, *Caloplaca cinnabarina*, *Dimeleana thysanta* and *Dimeleana* PH1 were found on conglomerates (hard rocks and pebbles with low porosity). Two species, *Graphina microspora* and *Pertusaria indica*, were found on almost all siltstones (grain sizes smaller than those of sandstones) at Phu Man Kao, which was a disturbed area. The lower montane shrub forest had the greatest diversity of micro-saxicolous lichens because the area had low temperature, high light intensity, strong wind and high relative humidity all year. The most widely distributed lichens were *Pyrrhospora russula*, *Diploschistes actinostomus* and *Diploschistes megalosporus*. Furthermore, two aquatic lichens, *Aspicilia* and *Verrucaria*, were found on damp sandstone in waterfall at Phu Hin Rong Kla National Park. *Graphina* and *Porina* lichens were dominant genera on damp sandstone near running streams in lower montane rain forest.

As micro-saxicolous lichens grew in harsh conditions such as on rock surface, the properties of rocks, such as their texture, hardness, aspects, porosity, illumination, sharpness, and wetting-drying cycles, influence the development of lichen communities. Therefore, dominant species of micro-saxicolous lichens can be used as bioindicators of specific forest type, its climate conditions and degree of disturbances.

Table1. Families and genera of micro-saxicolous lichens on 4 kinds of rocks in 5 forest types at Phu Hin Rong Kla National Park.

Family	Genera	Features				Forest types				
		sandstone	conglomeratic sandstone	conglomerate	silt stone	LMSF	LMOPF	LMOF	LMRF	MDF
Acarosporaceae	<i>Acarospora</i>	+1	+1	-	-	+1	-	-	+1	-
Bacidiaceae	<i>Bacidia</i>	+1	-	-	-	+1	-	-	-	-
Baeomycetaceae	<i>Baeomyces</i>	+1	+1	-	-	-	-	+1	-	-
Diploschistaceae	<i>Diploschistes</i>	+5	+4	-	-	+3	+1	+1	+3	-
Graphidaceae	<i>Graphina</i>	+4	+5	-	+1	+3	+3	+1	+4	-
	<i>Graphis</i>	+1	-	-	-	-	-	-	+1	-
	<i>Phaeographina</i>	+3	+1	-	-	+1	-	-	-	-
Hymeneliaceae	<i>Aspicilia</i>	+5	+1	-	-	+3	+1	-	-	+2
Lecanoraceae	<i>Lecanora</i>	+3	+6	-	-	+4	+5	+1	+1	-
	<i>Pyrrhospora</i>	+1	+1	-	-	+1	-	-	-	-
Micariaceae	<i>Micarea</i>	+1	+1	-	-	-	-	-	+1	-
Pertusariaceae	<i>Pertusaria</i>	+6	-	-	+1	+5	+1	-	-	-
Physciaceae	<i>Buellia</i>	+6	+2	-	-	+5	-	-	-	-
	<i>Dimeleana</i>	-	+2	+2	-	+2	-	-	-	-
	<i>Rinodina</i>	+6	-	-	-	-	+3	+1	+2	-
Strigulaceae	<i>Strigula</i>	+1	-	-	-	-	+1	-	-	-
Thelotremataceae	<i>Myriotrema</i>	+1	-	-	-	-	+1	-	+1	-
Teloschistaceae	<i>Caloplaca</i>	+3	+1	+1	-	+1	+1	-	-	-
	<i>Cabonia</i>	+1	+1	-	-	+1	-	-	-	-
Trichotheliaceae	<i>Porina</i>	+4	+1	-	-	-	+2	-	+4	-
Trypeteliaceae	<i>Polymeridium</i>	+1	-	-	-	+1	-	-	-	-
	Unknown	+1	+1	-	-	+1	-	-	-	-
Verrucariaceae	<i>Verrucaria</i>	+4	+2	-	-	-	+1	-	+4	-
Total		60	31	3	2	33	20	5	22	2

LMSF= lower montane shrub forest, LMOPF= lower montane oak-pine forest, LMOF= lower montane oak forest, LMRF= lower montane rain forest, MDF= mixed deciduous forest, + number of species

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