

อนุกรมวิธานของไลเคนแบบแผ่นจานในเขตรักษาพันธุ์สัตว์ป่าภูหลวง จังหวัดเลย

## Taxonomy of discolichens at Phu Luang Wildlife Sanctuary, Loei Province

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**บทคัดย่อ:** จากการรวบรวมตัวอย่างไลเคนแบบแผ่นจาน จำนวน 470 ตัวอย่าง บนพรรณไม้ และบนหิน ในเขตรักษาพันธุ์สัตว์ป่าภูหลวง จังหวัดเลย ระหว่างเดือนมิถุนายน 2551 ถึงเดือนพฤศจิกายน 2552 จาก 5 สภาพป่า คือ ป่าละเมาะเขาต่ำ, ป่าดิบชื้น, ป่าดิบเขาต่ำ, ป่าดิบแล้ง และป่าเต็งรัง ที่ระดับความสูงตั้งแต่ 700-1,555 เมตร จากระดับน้ำทะเล เมื่อวิเคราะห์ทางอนุกรมวิธานของไลเคน สามารถจำแนกได้ 15 วงศ์ 20 สกุล 53 ชนิด ได้ไลเคนสกุล *Acarospora*, *Aspicilia*, *Bacidia*, *Baeomyces*, *Biatora*, *Brigantiaea*, *Byssoloma*, *Caloplaca*, *Catillochroma*, *Dimerella*, *Haematomma*, *Hymenelia*, *Lecanora*, *Lecidella*, *Letrouitia*, *Maronea*, *Megalospora*, *Placynthiella*, *Pyrrhospora* และ *Ramboldia* นอกจากนี้พบไลเคน 5 ชนิด ที่ไม่เคยมีรายงานการพบในประเทศไทยมาก่อน และ 14 ชนิดคาดว่าจะจะเป็นชนิดใหม่ที่ค้นพบทางวิทยาศาสตร์ พบความหลากหลายของชนิดไลเคนแบบแผ่นจานมากในป่าละเมาะเขาต่ำ โดยเฉพาะอย่างยิ่ง *Lecanora argentata* วงศ์ Lecanoraceae เป็นไลเคนชนิดเดียว ที่พบได้ทุกสภาพป่า

**Abstract:** Discolichens were collected on bark and rocks at Phu Luang Wildlife Sanctuary, Loei Province, during June 2008 to November 2009. Four hundred and seventy specimens were explored from 5 different forest types including lower montane scrub, tropical rainforest, lower montane rain forest, dry evergreen forest and dry dipterocarp forest at the elevation 700-1,555 meters above sea levels. The identification revealed 15 families 20 genera 53 species including *Acarospora*, *Aspicilia*, *Bacidia*, *Baeomyces*, *Biatora*, *Brigantiaea*, *Byssoloma*, *Caloplaca*, *Catillochroma*, *Dimerella*, *Haematomma*, *Hymenelia*, *Lecanora*, *Lecidella*, *Letrouitia*, *Maronea*, *Megalospora*, *Placynthiella*, *Pyrrhospora* and *Ramboldia*. Moreover, the result finding that 5 species were new record in Thailand and 14 species were expected to be new scientific record. The highest diversity of discolichens was found in lower montane scrub forest especially lichen in the family Lecanoraceae. One species of *Lecanora argentata* showed a widely distribution in all forest types.

**Introduction:** Discolichens are a group of lichen-forming fungi (Ascomycota) including 23 families, 177 genera and 2,967 species which distributed throughout the world (Hawksworth *et al.*, 1995). This group is characterized by color of apothecia, present of lecanorine or leciadiene and colourless ascospore with simple or transeptate to muriform. This study is aims to explore biodiversity of discolichens and construct key characteristics and later to conserve the diversity as well as bring about sustainable uses.

**Methodology:** The collected samples were treated into air dry for herbarium preservation. Taxonomically identifications in term of morphology and anatomy were determined according to Awasthi, (1991), Brodo *et al.*, (2001), Elix, (2004), Kalb *et al.*, (2008), Lumbsch, (2004) and Rogers, (1982). For secondary metabolites analysis, microchemical test and thin layer chromatography (TLC) technique were carried out (White and James, 1985).

**Results, Discussion and Conclusion:** Fifteen families, 20 genera and 53 species from 470 specimens of discolichens were identified which all specimens were collected from different forest types including lower montane scrub forest (LMS), tropical rain forest (TRF), lower montane rain forest (LMRF), dry evergreen forest (DEF) and dry dipterocarp forest (DDF) at Phu Luang Wildlife Sanctuary (Table1.). Species composition varies among different forest types. The highest diversity was found in lower montane scrub forest (70%), lower montane rain forest (15%), the lesser in tropical rain forest (8%), and the lowest diversity were found in dry dipterocarp forest (5%) and dry evergreen forest (2%) (Fig.1). The family Lecanoraceae revealed the highest number of genus and species composition. The lowest number of genus and species composition were found in Acarosporaceae, Baeomycetaceae, Fuscideaceae, Gyalectaceae, Megalariaceae, Megalosporaceae, Pilocarpaceae and Trapeliaceae.

Four species, namely *Haematomma infusum*, *H. wattii*, *Lecanora achroa* and *L. pallida* which are common species mostly occurred in LMS. One species of *Lecanora argentata* showed a widely distribution in all forest types. *Brigantiaea leucoxantha* and *Letrouitia vulpina* were restricted in LMRF(Fig. 2). Five species consists of *Bacidia spadicia*, *Catillochroma melanotropa*, *Haematomma africanum*, *H.infusum*, and *Lecanora allophana*, were new records of Thailand (Aptroot *et al.*, 2007; Boonpragob *et al.*, 1998; Wolseley *et al.*, 2002). Fourteen species, namely *Acarospora* PL. 1-J, *Bacidia* PL.1, *Bacidia* PL.1-J, *Bacidia* PL.2, *Baeomyces* PL.1, *Brigantiaea* PL.1, *Hymenelia* PL.1, *Lecanora* PL.1, *Lecanora* PL.1-J, *Lecanora* PL.2, *Lecanora* PL.2-J, *Placynthiella* PL.1, *Ramboldia deficius* and *Ramboldia* PL.1-J., were expected to be new species of science (Awasthi., 1991; Brodo *et al.*, 2001; Elix.,2004; Kalb *et al.*,2008; Lumbsch., 2004; Rogers., 1982). The distribution of the discolichens were affected by specific microhabitats especially light intensity, temperature, humidity, forest types and altitude of explorer site.

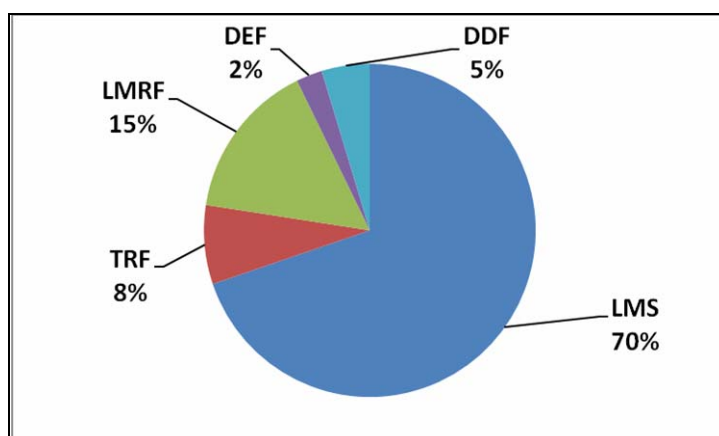


Figure 1. The Percentage of lichen taxa that belong to 18 genera were found in lower montane scrub (LMS), lower montane rain forest (LMRF), tropical rain forest (TRF), dry dipterocarp forest (DDF) and dry evergreen forest (DEF) at Phu Luang Wildlife Sanctuary  
Table 1. Families, genera and species of discolichens in five forest types at Phu Luang Wildlife Sanctuary.

Family	Genera-species	no. of samples in forest types					Total
		LMS	TRF	LMRF	DEF	DDF	
Acarosporaceae	<i>Acarospora</i> PL.1-J	2					2
Bacidiaceae	<i>Bacidia spadicia</i>	6					6
	<i>Bacidia</i> PL.1	10					10
	<i>B.</i> PL.1-J	2					2
	<i>Bacidia</i> PL.2	7					7
Baeomycetaceae	<i>Baeomyces</i> PL.1	5					5
Brigantiaeaceae	<i>Brigantiaea leucoxantha</i>			16			16
	<i>B.</i> PL.1			4			4
Fuscideaceae	<i>Maronea constans</i>	14					14
Gyalectaceae	<i>Dimerella nepalensis</i>	5					5
Haematommataceae	<i>Haematomma africanum</i>	3					3
	<i>H. collatum</i>	15					15
	<i>H. infuscum</i>	20	4	3			27
	<i>H. rufidulum</i>	2					2
	<i>H. wattii</i>	17	5	4			26
Hymeneliaceae	<i>Aspicilia calcarea</i>	7					7
	<i>Hymenelia</i> PL.1	4					4
Lecanoraceae	<i>Biatora desmaspora</i>	5					5
	<i>B. sphaeroides</i>	2					2
	<i>B. vernalis</i>	7					7
	<i>Lecanora achroa</i>	15			1	1	17
	<i>L. allophana</i>	14	1	1		1	17
	<i>L. argentata</i>	2	2	2	1	2	9
	<i>L. argopholis</i>	2	1		1	1	5
	<i>L. carpinea</i>	5					5
	<i>L. cenisea</i>	1					1
	<i>L. dispersa</i>	2	3	1		2	8
	<i>L. intricata</i>	4					4
	<i>L. lividocarnea</i>	4	1	1	1		7
	<i>L. marginata</i>	6	3			3	12
	<i>L. pallida</i>	18	1	1			20
	<i>L.</i> PL.1	10					10
	<i>L.</i> PL.1-J	14					14
	<i>L.</i> PL.2-J	1					1
	<i>L.</i> PL.2	12					12
	<i>Lecidella carpathica</i>	4					4
<i>Pyrrhospora gowardiana</i>	2					2	
<i>Ramboldia deficius</i>			11		7	18	
<i>Ramboldia heterocarpa</i>	11					11	

	<i>R. russula</i>	3		11	3	17
	<i>R. siamensis</i>	2		2	2	6
	<i>R. PL.2</i>	3			3	6
	<i>R. PL.1-J</i>	5				5
Letrouitiaceae	<i>Letrouitia transgressa</i>		11	12		23
	<i>L. vulpina</i>			3		3
Megalariaceae	<i>Catillochroma melanotropa</i>	5				5
Megalosporaceae	<i>Megalospora tuberculosa</i>	13				13
Pilocarpaceae	<i>Byssoloma meadii</i>	6	4			10
Telochistaceae	<i>Caloplaca cf. cinnabarina</i>	8				8
	<i>C. feruginea</i>	1				1
	<i>C. flavorubescens</i>	7				7
	<i>C. furfuracea</i>	6				6
Trapeliaceae	<i>Placynthiella PL.1</i>	9			5	14
Total		328	36	72	12	470

(LMS = lower montane scrub, TRF= tropical rainforest, LMRF = lower montane rain forest, DEF = dry evergreen forest,DDF = dry dipterocarp forest)

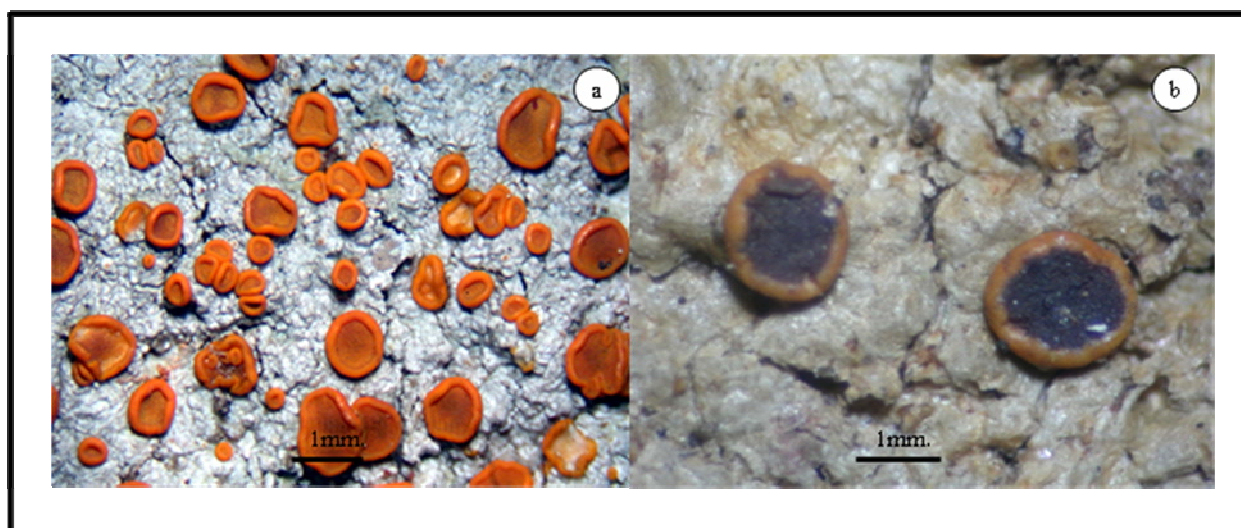


Figure 2. Two species of Discolichens were found in lower montane rain forest  
a) *Brigantiaea leucoxantha* b) *Letrouitia vulpina*

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