

H_H0031: LICHENS FAMILY PHYSCIACEAE ASCOMYCOTA IN MANGROVE FOREST AT CHANTABURI AND TRAT PROVINCES

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Abstract: The lichen five hundred and seventy-two specimens from Chantaburi and Trat provinces of family physciaceae were collected during November 2013 to May 2014 and taxonomic identified to eight genera and twenty-seven species. The high diversity was sixteen species on *Rhizophora apiculata* Blume and thirteen species on *Excoecaria agallocha* L. whereas *Dirinaria picta* (Sw.) Clem. & Shear. and *Physcia undulata* Moberg were commonly found.

Introduction: Lichen flora of Thailand from many past decades to currently were principally examined only in the mainland forests. It's very least in mangrove forest. Although the mangrove forest has covered throughout the eastern central and southern part of Thailand totally around 1,525,060 rai and it is not only plentiful of birds, wildlife animal, macro and microfauna but different varieties of evergreen trees shrubs and epiphytes such as lichen as well.¹ However the lichens in mangrove forest were not interested and discarded to survey and compile by the Thai and foreigner lichenologists. To complete lichen flora checklist of Thailand, the study expands on the known taxonomy, diversity, and distribution and also provides information for the conservation and sustainable utilization of biodiversity resources in Thailand.

Methodology: Lichen samples were collected at Tarson learning center and ecotourism mangrove forest (12° 22' 06.60" N 102° 20' 37.23" E), Kung Krabaen (12° 34' 19.06" N 101° 53' 59.59" E), Tagad yai (12° 30' 42.05" N 102° 05' 38.76" E) plants reserve area Chantaburi and Koh Chang (12° 0'30.38" N 102°20'56.95" E), Koh Kod, (11° 40' 0.87" N 102° 33' 51.01" E) Trat provinces, which prepared for herbarium preservation. Study of taxonomy of lichens morphological and anatomical features under light microscope and stereomicroscope. Taxa were determined according to [1], [3], [4] [7]. Chemistry of the thalli and lichen products were characterized by spot test and Thin Layer Chromatography (TLC) according to white and James.⁹

Results and Discussion: From the lichen samples, five hundred and seventy-two were identified to macrolichen three genera; *Dirinaria* (Tuck.) Clem., *Physcia* (Schreb.) Michaux and *Pyxine* Fr. and microlichen five genera; *Amandinea* M._Choisy ex Scheid. & M.Mayrhofer, *Buellia* De Not., *Baculifera* Marbach & Kalb, *Cratiria* Marbach and *Stigmatochroma* Marbach. Almost all lichen genera distribute over low-land and high-land forests, which differ from *Heterodermia* Trevis. only growing on high-land forest.⁵ It was twenty-seven taxa that found on eighteen phorophytes at Kung Krabaen (10 taxa), Tagad Yai (19 taxa) Tarson (13 taxa) of Chantaburi province, Koh Chang (8 taxa) and Koh Kod (5 taxa) of Trat province. Whereas *Dirinaria picta* (Sw.) Clem. & Shear. and *Physcia undulata* Moberg (fig-1) were frequently found on dominant phorophyte trees in mangrove forest at Chantaburi and Trat provinces (table 1+2), where high sunlight and good ventilation properly pronounced for colonization of these two lichen species.²The highest density of lichen taxa was sixteen species on *Rhizophora apiculata* Blume and the second highest density of lichen taxa was thirteen species on *Excoecaria agallocha* L. It was calculated in to fifty-nine and forty-eight percentage (fig-2) respectively.

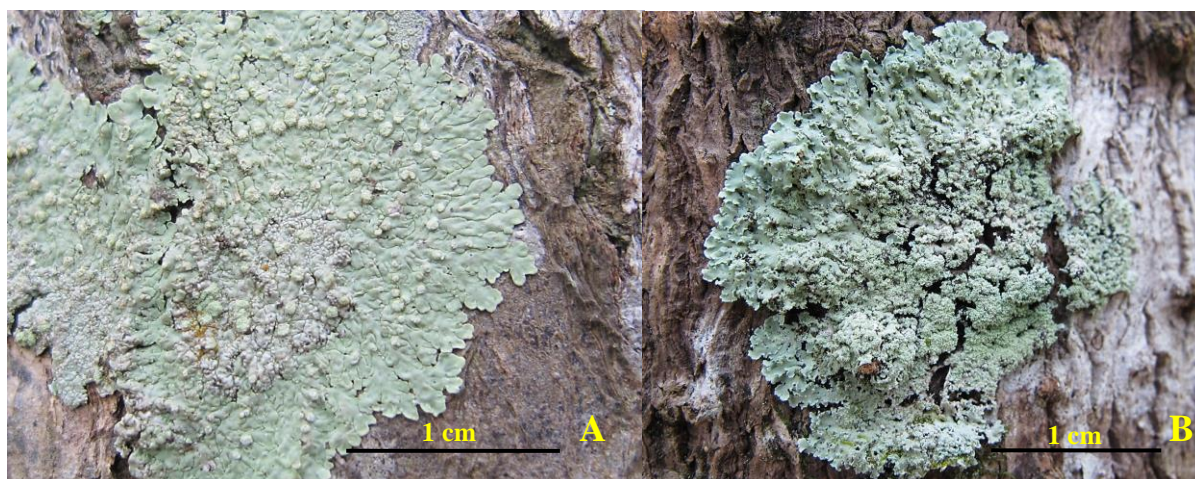


Figure 1. *Dirinaria picta* (Sw.) Clem. & Shear (A) and *Physcia undulata* Moberg (B)

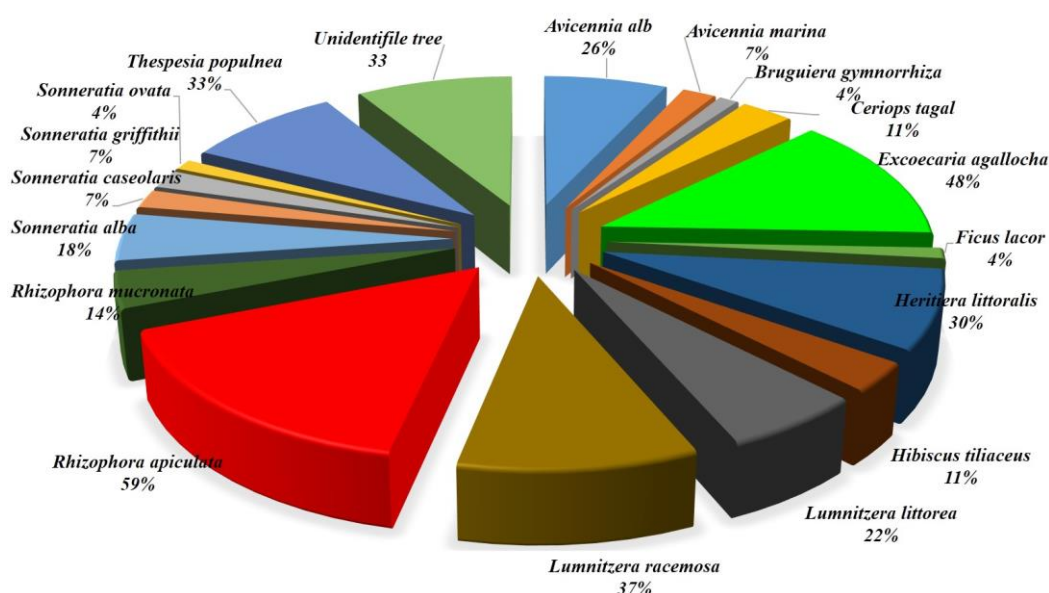


Figure 2. The Percentage of lichen taxa on eighteen phorophytes in mangrove forest at Chantaburi and Trat province.

Conclusion: Species diversity of lichen family physciaceae in mangrove forest at Chantaburi and Trat provinces was discovered eight genera twenty-seven species and very diverse on *Rhizophora apiculata* Blume trees which it was corresponding to [8] report. The specimens, four hundred and sixty-five were mainly foliose lichens including *Dirinaria* (Tuck.) Clem., *Physcia* (Schreb.) Michaux and *Pyxine* Fr. The other one hundred and seven specimens were crustose lichens, *Amandinea* M. Choisy ex Scheid. & M. Mayrhofer, *Buellia* De Not., *Baculifera* Marbach & Kalb, *Cratiria* Marbach and *Stigmatochroma* Marbach (Table 1). The density of lichen taxa is not only relied on species of vegetation in forest (table 2), climate, elevation but biotic circumstantial as well [6].

Table 1. Lichen taxa of study sites at Chantaburi and Trat provinces.

Lichen-taxa	CHANTABURI			TRAT		No. of specimens
	1	2	3	4	5	
<i>Amandinea diorista</i> var. <i>hypopelina</i>		1				1
<i>Baculifera remensa</i>			2			2
<i>Buellia bahiana</i>			2	7		9
<i>Buellia curatellae</i>			1			1
<i>Buellia desertica</i>	1					1
<i>Buellia pleiotera</i>	5					5
<i>Buellia reagen</i>			2			2
<i>Buellia rechingeri</i>			1			1
<i>Buellia triseptata</i>	1	13	26			40
<i>Buellia</i> sp.			1			1
<i>Cratiria dissimilis</i>	3	12	19	6		40
<i>Dirinaria aegialita</i>		4		7	2	13
<i>Dirinaria applanata</i>		5	4	6		15
<i>Dirinaria confluens</i>	4	5	26			35
<i>Dirinaria papillulifera</i>	13					13
<i>Dirinaria picta</i>	62	16	46	33	14	171
<i>Physcia albata</i>	1		6			7
<i>Physcia dimidiata</i>					1	1
<i>Physcia integrata</i>			3			3
<i>Physcia undulata</i>	43	3	80	18		144
<i>Pyxine asiatica</i>	2	1		13		16
<i>Pyxine cocoes</i>		1	7		1	9
<i>Pyxine copelandii</i>					8	8
<i>Pyxine cylindrica</i>	2		1			3
<i>Pyxine retirugella</i>	12		10	4		26
<i>Pyxine subcinerea</i>			1			1
<i>Stigmatochroma glaucotheca</i>	3		1			4
Total lichen taxa	13	10	19	8	5	572
		24		11		

Note: 1. Tarson 2. Kung Krabaen 3. Tagad Yai 4. Koh Chang 5. Koh Kod

Table 2. Lichen taxa from eighteen phorophytes

Lichen taxa	Phorophyte																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
<i>Amandinea diorista</i> var.																		1	1
<i>hypopelina</i>																			
<i>Baculifera remensa</i>					2														2
<i>Buellia bahiana</i>	1									7							1		9
<i>Buellia curatellae</i>																	1		1
<i>Buellia desertica</i>							1												1
<i>Buellia pleiotera</i>										5									5
<i>Buellia reagen</i>																	2		2
<i>Buellia rechingeri</i>	1																		1
<i>Buellia triseptata</i>	1				3				12	18	3						3		40
<i>Buellia</i> sp.																	1		1
<i>Cratiria dissimilis</i>							3			16	10							11	40
<i>Dirinaria aegialita</i>					1		2			3	2	3						2	13
<i>Dirinaria applanata</i>	1				3	2	1			1	5						2		15
<i>Dirinaria confluens</i>	1				4					7	4	13					5	1	35
<i>Dirinaria papillulifera</i>					1		5	3			4								13
<i>Dirinaria picta</i>	5	14	2	3	15		14	2	7	6	62	4	1	1	1	4	9	21	171
<i>Physcia albata</i>					3					1	2	1							7
<i>Physcia dimidiata</i>																		1	1
<i>Physcia integrata</i>										1	2								3
<i>Physcia undulata</i>	4	16			16		4	2	19	22	46	5	3	3	1		1	2	144
<i>Pyxine asiatica</i>				2	1						11		2						16
<i>Pyxine cocoes</i>		2			2				3				1					1	9
<i>Pyxine copelandii</i>																		8	8
<i>Pyxine cylindrica</i>					2						1								3
<i>Pyxine retirugella</i>					8					4	11		3						26
<i>Pyxine subcinerea</i>									1										1
<i>Stigmatochroma glaucotheca</i>							3				1								4
Total lichen taxa	7	3	1	2	13	1	8	3	6	10	16	4	5	2	2	1	9	9	

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Note: 1. *Avicennia alba* 2. *Avicennia marina* 3. *Bruguiera gymnorrhiza* 4. *Ceriops tagal* 5. *Excoecaria agallocha* 6. *Ficus lacor* 7. *Heritiera littoralis* 8. *Hibiscus tiliaceus* 9. *Lumnitzera littorea* 10. *Lumnitzera racemosa* 11. *Rhizophora apiculata* 12. *Rhizophora mucronata* 13. *Sonneratia alba* 14. *Sonneratia caseolaris* 15. *Sonneratia griffithii* 16. *Sonneratia ovate* 17. *Thespesia populnea* 18. Unidentified tree 19. No. of specimens

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