

## Study of biodiversity. And indicators of air quality in the surrounding forest lichens

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### Abstract

This study has the following goals: 1) Explore the biodiversity of lichens. 2) Study the physical factors that affect the survey lichens in forest, and 3) Get the type of survey used lichens as indicators of air quality in the Don Chan sciences. Kalasin Province. During the months of June to August. By defining the study area is the fourth area of the road for Kumek - Donchan. The results showed that physical factors studied. Temperature and humidity of the 4 points. No difference. Luminance most point 4, Lichen species observed include the 2 groups . The group is Crustose including *Chrysothrix*, *Graphidaceae*, *Laurera*, *Lecanora*, *Tryperthelium tropicum* and Foliose including *Dirinaria*, *Pyxine cocoes* and type of lichen survey can be used as an indicator of air quality. The study found a kind of lichen groups highly durable and sturdy. But not lichen group in good weather. By a ratio of 1:10:0 conclude that the weather in the area studied, Poor air quality.

**Research Questions** How to Lichens observed in upland forest surrounding the plate. With biodiversity and measure air quality ?

**Hypothesis:** Lichens observed in upland forest surrounding the plate. With biodiversity and To measure air quality.

### Materials and Method:

Study biodiversity. And air quality indicators of lichen in the forest. Divided into three different experiments the following.

**Materials** 1. Densiometer 2. notebook 3. camera 4. meters 5. rope. **6.** Manual Survey lichens.

### Method

1. The pine area is divided into four points away from the 100 200 300 and 400 meters in size 10 x10 meters and survey data, including temperature and humidity. Measured luminance. Density of trees.

2. Exploring species of lichens on tree at 2 m from the ground up. In a survey. Note the comparison with the manual survey lichens (Wararak 2009) by exploring the tree with the bark of the trunk upright and traverse the tree to find lichens number 10 from all and choose from. observed lichens.

3. Measure the length of the surrounding trees, lichens and verify observed structures of lichens by observing some structures, such as the size of the plate and the color of lichens recorded.

4. Measuring air quality using lichens as indicators. By the data from the second analysis of the air quality by using.

Manual Survey lichens.

5. Threshold of GWF (2010) The lichen survey guide

Air quality, no pollution found Lichens are a group of good weather.

Poor air quality found Lichens most persistent group

Bad weather found Lichen resistance groups than other groups.

Very bad weather Group found only lichens durability

Severe air pollution. No lichens.

### research result

1. Survey of the general forest area in the Donchanwittayakom school



Table 1 Recording of the forest in the Donchanwittayakom school

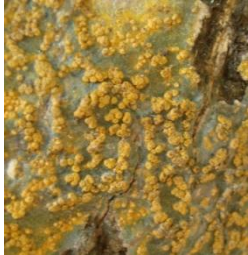




study area	temperature (°C)			humidity (%)			Measured luminance (%)	Density of trees. (trees/m <sup>2</sup> )
	Jun.	Jul	Aug	Jun.	Jul	Aug		
100 m	29	31	28	74	80	86	60	2.3
200 m	29	31	28	74	80	86	48	2.5
300 m	29	31	28	74	80	86	46	2.8
400 m	29	31	28	74	80	86	70	2.1

**Table 2** Trees are found lichens.

Trees	Bark		Persistence of tree bark	
	Smooth	Rough	Bark off easily.	Loose bark
<i>Shorea siamensis</i> Miq	-	✓	-	✓
<i>Barringtonia acutangula</i> (L.) Garetn	-	✓	-	✓
<i>Strychnos nux-blanda</i> A.W. Hill	✓	-	-	✓
<i>Bombax valetonii</i> Hochr	✓	-	-	✓
<i>Manaifera indica</i> Linn.	-	✓	-	✓
<i>Pterocarpus macrocarpus</i> Kurz.	-	-	-	✓

**Table 2** Characteristics of lichens

groups	Name	Characteristics of lichens		Sample Figure lichens
		thallus	Characteristics	
Crustose	<i>Chrysothrix</i>	Soft Green	A light green powder is distributed under the bark	
	<i>Graphidaceae</i>	Dark gray.	Resemble Chinese characters. Or shaped like lips	

groups	Name	Characteristics of lichens		Sample Figure lichens
		thallus	Characteristics	
	<i>Laurera</i>	Plate yellow and orange	Photos Add volcano has a yellow, orange, brown or black in the middle of the ball. And raised in a close-knit group. Or The single broadcast.	
	<i>Lecanora</i>	Green-gray	The cup-shaped pale green ball with a definite edge	
	<i>Trypethelium tropicum</i>	Dark Green	The black mass distribution on Plate green background	
Foliose	<i>Dirinaria</i>	Green-gray	thallus squeeze tightly textured embossed on top of the thallus are clusters of powder is spread on the bottom of the thallus are firmly attached to the object.	
	<i>Pyxine cocoes</i>	gray	Have powdery. Attached to the edge of the field in Scattered around the blade. At the end of the thallus resembles translucent white or ice crystals stuck.	

groups	Name	Characteristics of lichens		Sample Figure lichens
		thallus	Characteristics	
Fructors	Not found	Not found	Not found	

Table 3 found lichens

Number of trees	Circumference of the tree (cm)	Lichen resistance groups	Lichens persistent group					
		<i>Pyxine cocoe</i>	<i>Dirinaria</i>	<i>Graphidaceae</i>	<i>Lecanora</i>	<i>Laurera</i>	<i>Trypethelium tropicum</i>	<i>Chrysothrix</i>
<i>Shorea siamensis</i> Miq (40)	67	5	40	15				5
<i>Barringtonia acutangula</i> (L.) Garetn (30)	73	15	30	41				4
<i>Strychnos nux-blanda</i> A.W. Hill (3)	53		3	4	1		1	
<i>Bombax valetonii</i> Hochr (17)	50		15	19				
<i>Manifera indica</i> Linn. (6)	105	1	3			5		4
<i>Pterocarpus macrocarpus</i> Kurz. (1)	61		1					

The total number of trees found lichens.	21	191
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### Conclusions:

The results showed that physical factors studied. Temperature and humidity of the 4 points. No difference. Luminance most point 4, Lichen species observed include the 2 groups . The group is Crustose including *Chrysothrix*, *Graphidaceae*, *Laurera*, *Lecanora*, *Tryperthelium tropicum* and Foliose including *Dirinaria*, *Pyxine cocoes* and type of lichen survey can be used as an indicator of air quality. The study found a kind of lichen groups highly durable and sturdy. But not lichen group in good weather. By a ratio of 1:10:0 conclude that the weather in the area studied, Poor air quality.

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### References

#### Search on the site

<http://globethailand.ipst.ac.th/>

<http://www.greenworld.or.th/environment/wind/118>

[http://www.tistr.or.th/t/publication\\_area\\_show\\_bc.?l=44&i2=44&hoshow=1](http://www.tistr.or.th/t/publication_area_show_bc.?l=44&i2=44&hoshow=1)