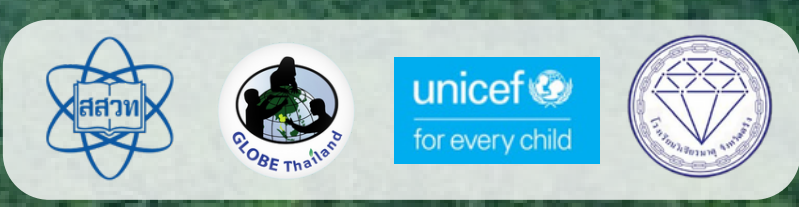


The study of the relationship between air quality and the diversity of lichens growing on trees at the median strip of Ban Khuan Intersection, Mueang Trang District, Trang



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Abstract

This study examines the relationship between air quality and lichen diversity on trees in the median strip at Ban Khuan Intersection, Mueang Trang District, Trang Province. The objectives of this study are
 1) To investigate the relationship between air quality and the number of lichen species found.
 2) To analyze the diversity of lichen species growing on trees in the area. Three tree species were studied Palm, Indian Oak, and Sri Trang. From the study, different tree species had varying numbers and types of lichens. A total of six types of lichens were found, categorized into high-tolerance and tolerant groups. One species belonged to the high-tolerance group, while five species belonged to the tolerant group. Among the trees studied, the Palm tree had the highest diversity of lichens, with four species: *Dirinaria picta*, *Dirinaria aegialita*, *Parmotrema praesorediosum*, and *Parmotrema grayanum*. The Indian Oak had two species, both in the tolerant group: *Dirinaria picta* and *Pyxine subcinerea*. The Palm tree had the highest number of lichens, and the area surrounding the Palm tree was found to have the lowest air quality. Meanwhile, Sri Trang had the lowest lichen diversity, indicating the best air quality. The relative humidity was found to be highest in areas around the Palm tree.

Keywords: Lichen, Air Quality Relationship, Temperature, Relative Humidity

Research Questions

1. How does air quality affect lichen growth?
2. Do different tree species in the median strip support different lichen diversity?

Research Hypotheses

1. Air quality affects lichen growth.
2. Different tree species in the median strip support different lichen diversity.

Study area



Introduction



How to conduct research



Hypotheses 1

- step 1** Determine the study area
- step 2** Use wet-dry bulb thermometer to measure relative humidity all 3 trees, find the average & record the results
- step 3** Use thermometer to measure all 3 trees, find the average & record the results
- step 4** save the data in the table

Hypotheses 2

- step 1** Determine the study area
- step 2** All 3 trees use Cu Smart Lens 20X clamped to study the characteristics of various types of lichens & record
- step 3** Count the number of lichens each type of lichens, take pictures & record data
- step 4** Classify & group types of lichens found on tree using air detectives handbook to record data



Research Results

Table 1: Air Quality Measurement Results

No	Tree Species	Results of Air Quality Measurements							
		Temperature (°C)				Relative Humidity (%)			
		1	2	3	Average	1	2	3	Average
1	Palm Tree	30	29	30	29.66	69	76	69	71.33
2	Mahogany Tree	29	30	30	29.66	75	76	76	75.66
3	Sri Trang Tree	30	31	30	30.33	83	76	76	78.33

According to Table 1, the areas around palm trees have an average temperature similar to that of mahogany trees. However, the areas around Sri Trang trees exhibit the highest temperature and relative humidity, while the lowest relative humidity is found near the palm trees.

Table 2 shows the types of lichens found on trees at the median strip of Ban Khuan Intersection, Mueang Trang District, Trang Province.

Tree No.	Tree name	High Tolerance Group						Tolerance Group						Good Air Group
		<i>Heterodermia diademata</i>	<i>Pyrenula sp.</i>	<i>Pyxine coxoes</i>	<i>Arctocarpus sp.</i>	<i>Dirinaria sp.</i>	<i>Lecanora sp.</i>	<i>Graphis sp.</i>	<i>Physcia sp.</i>	<i>Physcia dimidiata</i>	<i>Chrysothrix sp.</i>	<i>Pertusaria</i>	<i>Lecanora</i>	
1	Palm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	Mahogany	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	Sri Trang	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Total number of lichen groups (types)		2						7						

From Table 2, it was found that the Parlam tree had a total of 6 lichen species, the Mahogany tree had a total of 5 lichen species, and the Sri Trang tree had a total of 2 lichen species.

Summary and Conclusion

The study found that different tree species support different types of lichens, and the diversity of lichens varies among them. The Parlam tree hosted 6 species of lichens, which were classified into one high-canopy species: *Heterodermia diademata*. The remaining 5 species were categorized as lower-canopy species: *Graphis scripta*, *Lecanora sp.*, *Pertusaria sp.*, *Pyxine coxoes*, and *Haematomma africanum*. The Mahogany tree had 5 lichen species, classified into one high-canopy species: *Pyrenula sp.*, and four lower-canopy species: *Parmotrema sp.*, *Graphis scripta*, *Lecanora sp.*, and *Haematomma africanum*. The Sri Trang tree had only 2 lichen species, both of which were categorized as lower-canopy species: *Parmotrema sp.* and *Graphis scripta*. The tree species that hosted the highest number of lichen species was the Parlam tree. In terms of environmental factors, it was found that the Parlam tree had similar temperatures to the Mahogany tree, while the Sri Trang tree had the highest temperature. The highest relative humidity was recorded in the Mahogany tree, while the lowest relative humidity was found in the Parlam tree.

References

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Materials



Acknowledgments

The study on the correlation between air quality and lichen diversity growing on trees at the median strip of Ban Khuan Intersection, Mueang Trang District, Trang Province, was successfully completed. This success was made possible through the encouragement and support of Mr. Sakda Paisomboon, Director of Vichiamatuthit School. We would also like to express our heartfelt gratitude to Ms. Khwanjai Kanjanasri and Ms. Thamonwan Bunchuay, our advisors, for their kindness, assistance, valuable guidance, and for reviewing and correcting any shortcomings in our research, ensuring the quality of this report