

Soil Quality and Air Quality Affecting the Growth of Termite Mushrooms

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Abstract

This environmental science research aimed to investigate soil quality and air quality affecting the growth of termite mushrooms at Ban Thung Na School, Trang Province. The study focused on comparing soil quality, air quality, and the density of termite mushrooms between open areas and areas covered with trees. Soil quality was analyzed in terms of soil structure, soil temperature, soil moisture, and soil pH, while air quality was examined through air temperature and relative humidity. The results revealed that areas covered with trees had more favorable environmental conditions for the growth of termite mushrooms. The soil in these areas showed a granular structure, lower soil temperature, lower pH values, and higher soil moisture compared to open areas. In addition, air temperature was lower and relative humidity was higher in tree-covered areas. These factors contributed to a higher density of termite mushrooms in areas covered with trees than in open areas. The findings indicate that vegetation cover plays an important role in creating suitable environmental conditions for termite mushroom growth. Therefore, conserving tree-covered areas can help support biodiversity and promote sustainable use of natural resources within the school environment.

Introduction



Termite mushrooms are wild mushrooms that require appropriate moisture and temperature for growth and are commonly found near termite mounds. Their germination and development are strongly influenced by environmental factors, particularly soil quality and air conditions. At Ban Thung Na School, termite mushrooms have been observed to grow regularly in tree-covered areas, while growth in open areas occurs only in some years, suggesting differences in moisture, temperature, shading, and soil characteristics. Based on these observations, this study aimed to compare soil and air quality between the two areas and examine their relationship with the occurrence of termite mushrooms. The findings contribute to a better understanding of the local ecosystem, support environmental management and biodiversity conservation within the school area, and promote students' scientific process skills and awareness of sustainable resource use.

Map of Study Site(s)



The study area was Ban Thung Na School, Mueang District, Trang Province, located at latitude 7.6942 and longitude 99.7396.

Results



Results

The results of this environmental science research on soil quality and air quality affecting the growth of termite mushrooms at Ban Thung Na School, Trang Province, revealed that soil in areas covered with trees had a granular structure, lower soil temperature, and higher soil moisture than soil in open areas. In addition, air temperature was lower and relative humidity was higher in areas covered with trees. These environmental conditions contributed to a higher density of termite mushrooms in areas covered with trees, indicating that shaded environments with suitable moisture and temperature are more favorable for the growth of termite mushrooms.

Discussion

The measurement of soil quality, including soil structure, soil temperature, soil moisture, and soil pH, together with air quality in terms of air temperature and relative humidity, revealed clear differences between areas with and without tree cover. In areas covered with trees, the soil exhibited a granular structure, lower soil temperature, lower pH values, and higher soil moisture compared to open areas. In addition, air temperature was lower, while soil pH was higher and relative humidity was greater in tree-covered areas. These environmental conditions contributed to a higher density of termite mushrooms, indicating that shaded areas with suitable soil and air characteristics are more favorable for their growth.

Conclusions

The results of this environmental science research on soil and air quality at Ban Thung Na School, Trang Province, indicated that areas covered with trees provided more suitable conditions for termite mushroom growth than open areas. These areas had a granular soil structure, lower soil and air temperatures, and higher soil moisture and relative humidity. As a result, the density of termite mushrooms was higher in shaded areas, showing that appropriate moisture and temperature play an important role in supporting their growth.

Research Question

Asking Questions

1. Does the soil structure in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?
2. Does the soil temperature in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?
3. Does the soil moisture in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?
4. Does the soil pH in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?
5. Does the air temperature in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?
6. Does the relative humidity of the air in areas where termite mushrooms grow differ between open areas and areas covered with trees? How?

Research Methods

Study of Soil Structure in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Trees		Study of Soil pH in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Tree	
Study of Soil Temperature in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Trees		Study of Air Temperature in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Trees	
Study of Soil Structure in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Trees		Study of Relative Humidity of the Air in Areas Where Termite Mushrooms Grow in Open Areas and Areas Covered with Trees	

Bibliography

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