Project Title : A Study of Soil Quality Affecting the Density of Molineria latifoliain in Rubber Plantations, Trang Province
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Abstract

This environmental science research aimed to study soil quality affecting the density of Molineria latifolia in rubber plantations in Trang Province. The study focused on soil physical characteristics, soil moisture, soil temperature, soil nutrients, and other indicators of soil quality, as well as the density of Molineria latifoliain randomly selected study areas.

The results showed that the soil in the rubber plantation had a granular structure, with an average pH value of 8.16, average light intensity of 416.66, average soil moisture of 10%, and average soil temperature of 28.16°C. The mineral content in the soil ranged from low to slightly low.

Keywords: Molineria latifolia, soil quality

Background and Significance

Molineria latifolia is a valuable economic plant. Its fruits and various parts can be used for consumption and income generation for communities. Currently, intercropping Molineria latifolia in rubber plantations has increased, especially in Trang Province, where rubber plantations are widespread. Intercropping not only maximizes land use but also provides additional income for farmers.

Soil is a crucial factor affecting plant growth, as it provides nutrients, water, and root anchorage. Poor soil quality—such as unsuitable pH levels, low soil moisture, or insufficient nutrients—can limit plant growth. Therefore, studying soil quality in rubber plantations where bird's nest coconut is grown is essential.

The researchers were interested in studying soil quality in rubber plantations in Trang Province that affects the density of Molineria latifolia. Various soil factors were measured to analyze the relationship between soil quality and Molineria latifolia.The results can provide basic knowledge for farmers and interested individuals to improve soil management for more efficient cultivation of Molineria latifolia in rubber plantations.

Research Question

1.How does soil quality in rubber plantations affect the density of Molineria latifolia.

Research Hypothesis

1.Soil quality in rubber plantations affects the density of Molineria latifolia

Variables

Independent Variables (Soil Quality)

- Soil temperature
- Soil pH
- Soil moisture
- Light intensity
- Soil structure

Dependent Variable

- Density of Molineria latifolia

Controlled Variables

- Measuring instruments
- Study area
- Sampling tools
- Time of measurement

Materials and Equipment

1. Shovel
2. Petri dishes
3. Distilled water
4. Hygrometer
5. Soil N, P, and K test kits
6. Soil texture classification manual
7. 3-in-1 soil meter
8. Soil thermometer
9. Test tubes
10. CU Smart Lens
11. Notebook
12. Camera

Research Methodology

Study Area

The study was conducted in a rubber plantation in Trang Province, located at specified northern latitude and eastern longitude.

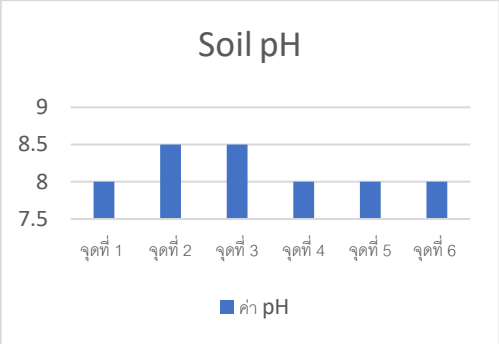
Part 1: Studying Soil Quality Affecting the Density of Molineria latifolia Select six similar study plots in the rubber plantation.

1. Use random sampling to determine soil sampling points and Molineria latifolia density locations.
2. Collect soil samples in petri dishes and analyze soil N, P, and K using test kits.
3. Study soil physical characteristics, including soil structure, using CU Smart Lens and soil texture analysis.
4. Measure soil temperature at each point using a soil thermometer and record the data.
5. Measure soil moisture at each point using a 3-in-1 soil meter and record the data.
6. Measure light intensity at each point using a 3-in-1 soil meter and record the data.
7. Measure soil pH at each point using a 3-in-1 soil meter and record the data.

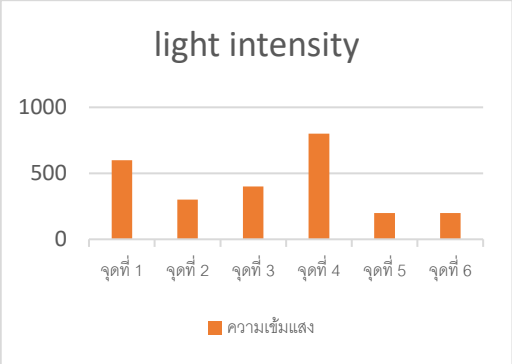
8. Record all data in tables.

Research Results

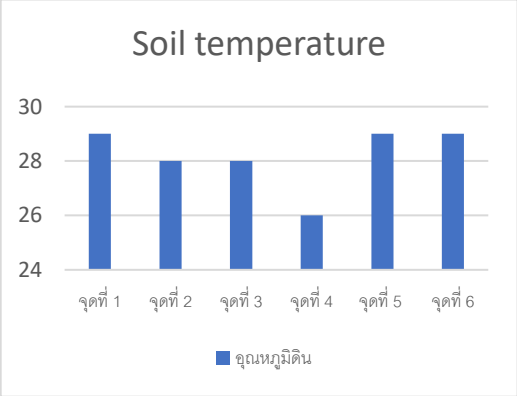
The study on soil quality affecting the density of Molineria latifolia in rubber plantations in Trang Province revealed the following results.



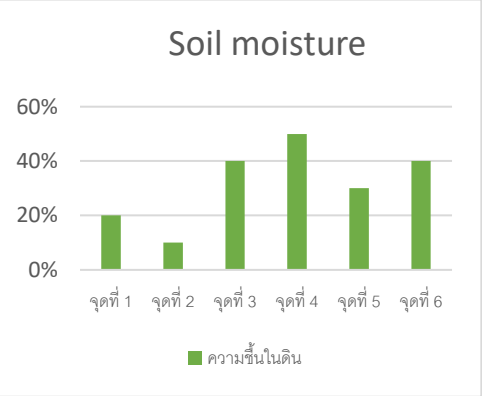
Bar charts showing soil pH



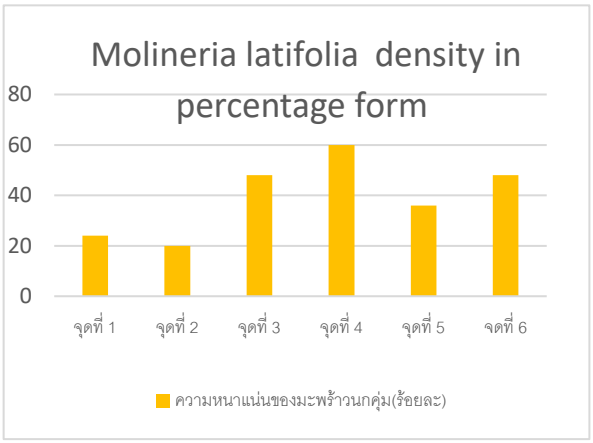
Bar charts light intensity



Bar charts soil temperature



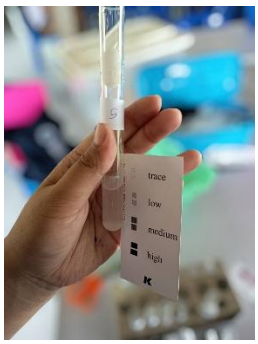
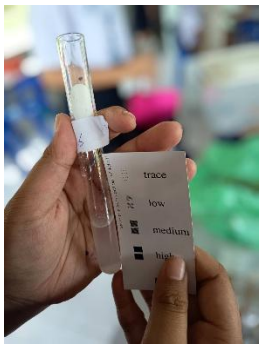
Bar charts soil moisture



Molineria latifolia density in percentage form

Table 1: Soil Mineral Analysis in Rubber Plantations

Study Point	Photo	Result
1		Slight mineral content
2		Slight mineral content
3		

		Low mineral content
4		Slight mineral content
5		Low mineral content
6		Low mineral content

The table shows that soil minerals in the rubber plantation ranged from slightly low to low.

Conclusion and Discussion

The study found that soil in the rubber plantation had a granular structure, with an average pH of 8.16, average light intensity of 416.66, average soil moisture of 10%, average soil temperature of 28.16°C, and low to slightly low mineral content.

Recommendations

For future researchers:

1. Researchers who study data from online sources should compare both domestic and international websites to improve accuracy and reliability of analysis and conclusions.

Acknowledgements

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