



# Study of factors affecting *Molineria latifolia* Herb in Palian District, Trang Province Wichienmatu school



## Abstract

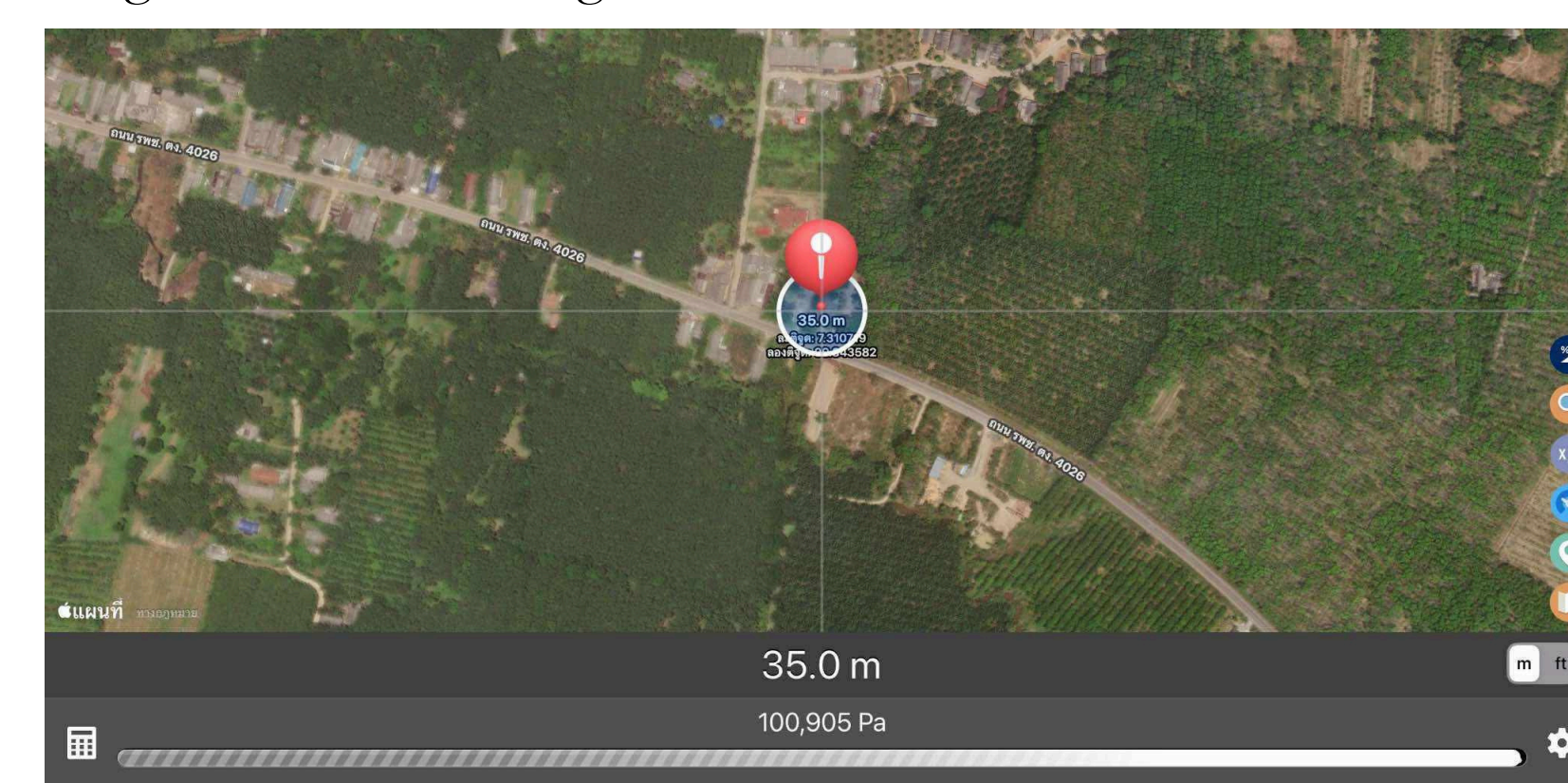
This research aims to study the factors influencing the growth of *Molineria latifolia* (Hill coconut) in Palian District, Trang Province. The study examines key environmental parameters, including soil moisture, air humidity, soil temperature, soil pH, and light intensity across six different locations. Data collection involved measuring tree density, average tree height, leaf size, number of leaves, trunk diameter, and leaf length in both low-density and high-density areas. The findings indicate that trees in low-density areas (25 trees/m<sup>2</sup>) tend to grow taller (10.37 cm), with larger leaves (6.79 cm) and more leaves per plant (4 leaves) compared to trees in high-density areas (63 trees/m<sup>2</sup>), where the average height was 7.46 cm, leaf size 8.42 cm, and number of leaves 3. These results suggest that plant density and environmental factors significantly influence the growth of *Molineria latifolia*. This study provides valuable insights for conservation efforts and cultivation management of this plant species.  
Keywords: *Molineria latifolia*, growth factors, plant density, environmental conditions, soil analysis

## Research Methods

- To study the growth of Hill coconut, at Ban Lam Khlaeng, Pa Lian Subdistrict, Pa Lian District, Trang Province.
- To analyze the growth factors of dwarf coconut, including soil moisture, relative air humidity, soil temperature, soil minerals, soil pH, and light intensity.

### Carrying Out Investigations

This study examined the environmental factors influencing the growth of *Molineria latifolia* in Palian District, Trang Province. Data collection followed GLOBE Soil and Atmosphere Protocols, focusing on soil pH, moisture, temperature, air humidity, and light intensity. Six sampling locations were selected based on differences in tree density, categorized as low-density (25 trees/m<sup>2</sup>) and high-density (63 trees/m<sup>2</sup>). Measurements were taken at each site using standard tools. Soil samples were analyzed for pH and moisture content, while air humidity and light intensity were recorded at different times of the day. Plant growth characteristics, including tree height, leaf size, number of leaves, and trunk diameter, were measured. Team members were assigned specific roles, ensuring accurate data collection. The collected data help identify key environmental conditions affecting *Molineria latifolia* growth, contributing to conservation efforts.



Study location: Ban Lam Khlaeng Village, Pa Lian Subdistrict, Pa Lian District, Trang Province

### GLOBE Badges

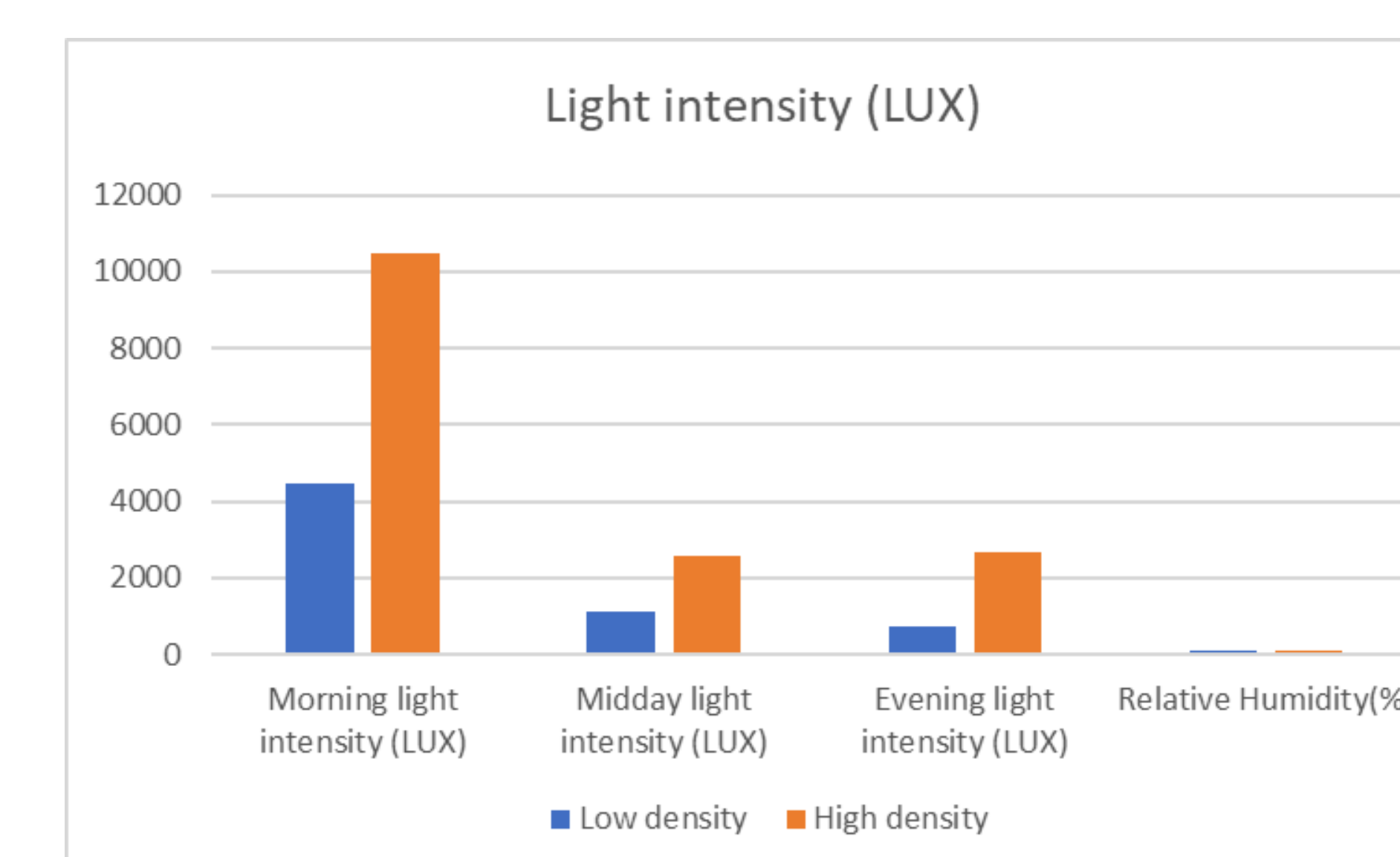
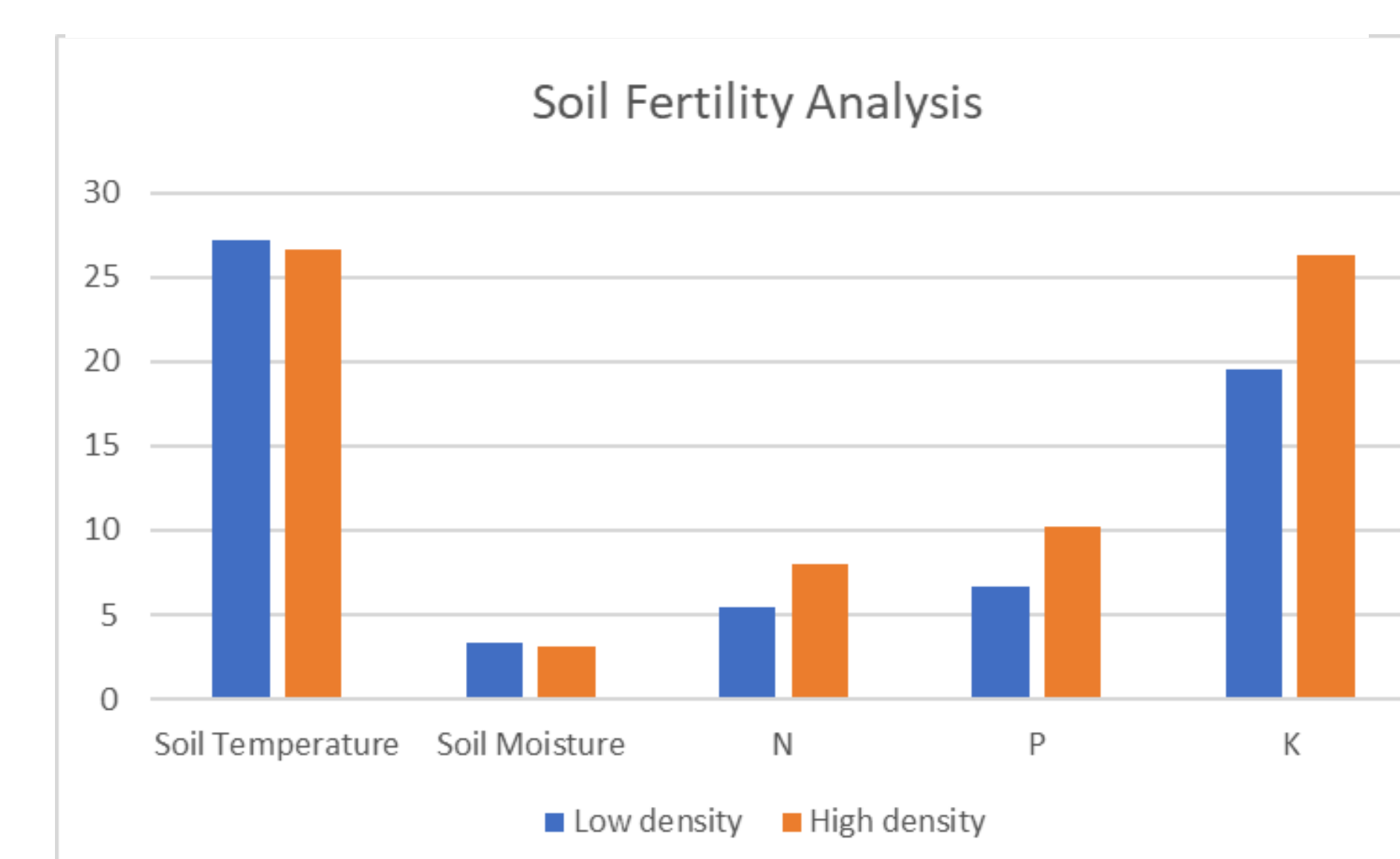
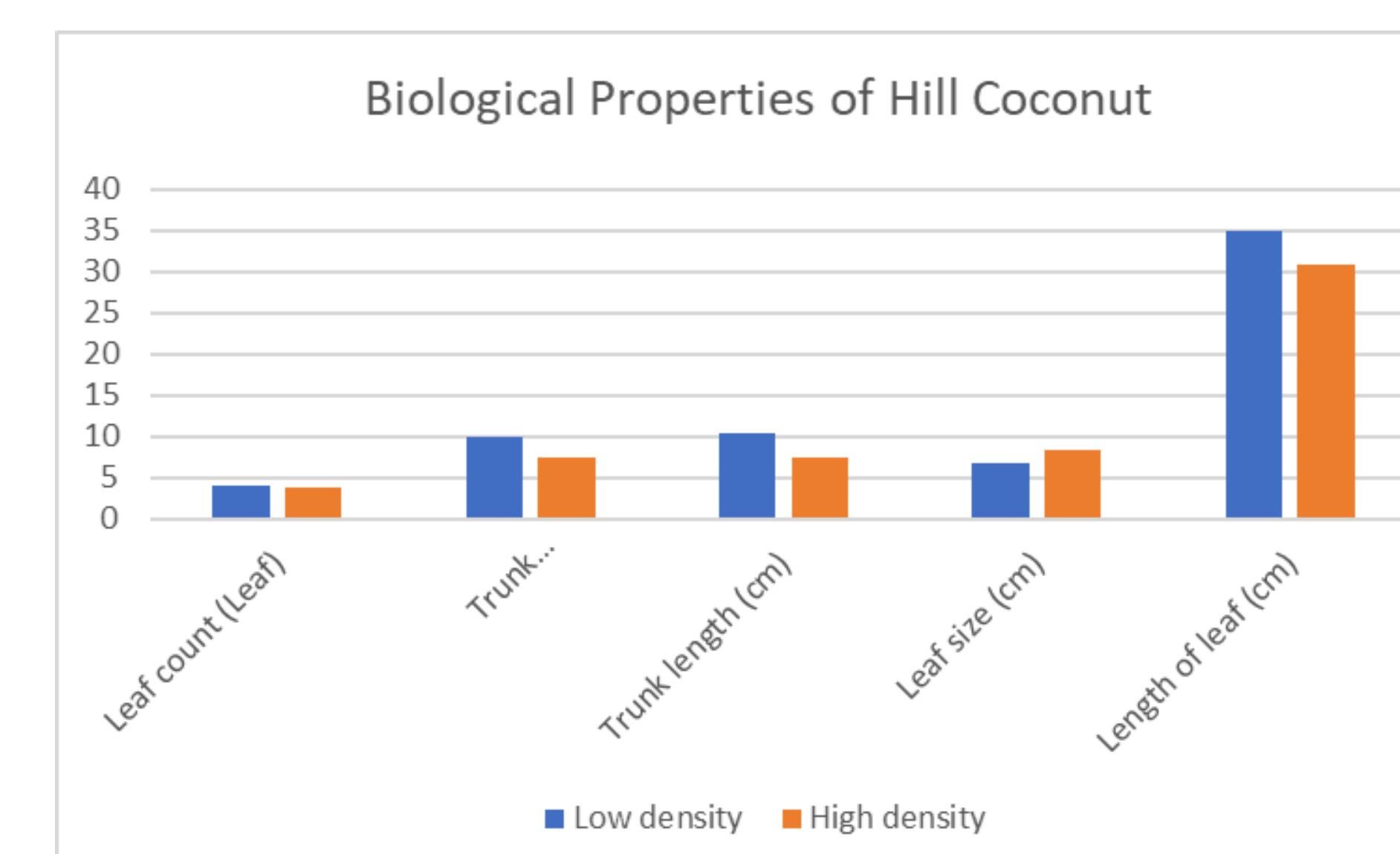
In this project, we have meticulously gathered and analyzed data from field experiments, demonstrating our ability to systematically manage and interpret information. Through statistical analysis, we were able to clearly compare differences between areas with varying plant densities, revealing a strong correlation between environmental factors and plant growth. Beyond data analysis, we also showcased creativity in presenting our findings by linking theoretical concepts with real experimental results, making complex information more accessible and understandable to the audience.

Furthermore, our work process involved close collaboration among team members, with continuous knowledge exchange and discussions, leading to effective problem-solving and improvement of each stage of the experiment. In terms of impact, we believe that our findings have the potential to be applied in agriculture to enhance resource management efficiency and promote sustainable plant growth.

This project not only tested our skills in data analysis and scientific communication but also reflected our commitment to expanding knowledge and applying it to create a broader impact in society and the agricultural sector.

## Results

The study found that *Molineria latifolia* in low-density areas grew taller and had larger trunk diameters, while those in high-density areas had smaller sizes and fewer leaves due to competition for resources. Soil pH and moisture varied slightly but did not significantly affect growth. Data trends were summarized in tables, graphs, and the GLOBE visualization platform.



## Discussion

The results support the hypothesis that competition affects *Molineria latifolia* growth. Trees in low-density areas grew better due to more access to sunlight and nutrients, while those in high-density areas were smaller. This aligns with studies on plant competition. The study provides useful insights for conservation, though limitations such as soil variations, weather fluctuations, and measurement errors may have influenced the data. Despite these, the findings contribute to understanding the species' growth and can support future ecological research.



## Research Question

- Do different environments affect the growth of Hill coconut, How?
- Does the different density of Hill coconut growth areas affect their growth, How?

## Introduction

Understanding the factors influencing plant growth is essential for biodiversity conservation and ecological management. *Molineria latifolia* (Hill coconut) is a native plant species found in Thailand's forests, particularly in Palian District, Trang Province. Observations indicate that its distribution and growth patterns vary depending on environmental conditions. However, there is limited research on the specific factors affecting its development.

This study aims to analyze the environmental conditions influencing the growth of *Molineria latifolia*, including soil properties, moisture levels, temperature, and light intensity. The findings will contribute to a better understanding of the plant's ecological requirements and provide useful data for conservation and sustainable land management.



## Conclusions

This study confirms that environmental factors influence the growth of *Molineria latifolia*, with trees in low-density areas growing better due to reduced competition. The results support the conclusion that access to sunlight and nutrients plays a key role in plant development.

To improve accuracy, future studies should ensure consistent soil conditions and refine measurement methods. Further research could expand to different locations or seasons to better understand growth patterns. These findings help provide useful information on factors affecting *Molineria latifolia* growth and can support future ecological studies.

## Bibliography

- Biodiversity Research Center in Honor of Her Majesty Queen Sirikit's 72nd Birthday, Institute of Southern Borderland Research and Development, Yala Rajabhat  
-University, <https://www.komchadluek.net/kom-lifestyle/general-knowledge/579695>  
-Dr. Wit Thiengburanatham. "Wan Sak Lek". Thai Herbal Dictionary, 5th Edition, Pages 730-731.