



A Study on Soil Quality Affecting Carbon Sequestration in Rubber Trees and Teak Trees in the Phu Khao Thong Forest Garden, Trang Province

Research Team : Miss Piyaporn Suntsan , Miss Thanyrada Iamsaree , Miss Nattwara Kongchai
Advisors : Mrs. Saisuda Napaphan , Miss Nilawan Boonthong
Ban Thung Na School, Mueang District, Trang Province.

Abstract

The study on soil quality affecting carbon sequestration in *Dipterocarpus alatus* (Yang Na) and *Tectona grandis* (Teak) trees in Wat Phu Khao Thong Forest Plantation, Trang Province, aims to:

1. Examine the growth of Yang Na and Teak trees in the forest plantation.
2. Assess the amount of carbon sequestration in these trees.
3. Investigate how soil quality influences carbon sequestration in Yang Na and Teak trees in the study area. The findings reveal that the soil in areas where Yang Na and Teak trees are planted is sandy loam with a granular structure that is tightly packed. The soil has a slightly acidic pH, with similar soil temperatures across the study sites. However, the soil moisture content is high, and the mineral content in the soil near Teak trees is slightly higher than that near Yang Na trees. Furthermore, Yang Na trees exhibit a larger average circumference and height than Teak trees, indicating better growth and higher carbon sequestration capacity.

Research Questions

1. "Does the growth of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province, differ? If so, how?"
2. "Does the carbon sequestration of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province, differ? If so, how?"
3. "Does soil quality affect the amount of carbon sequestration in rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province? If so, how?"

Research Hypotheses

1. "The growth of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province, differs."
2. "The carbon sequestration of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province, differs."
3. "Soil quality affects the amount of carbon sequestration in rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province. Does it differ?"

Introduction



Study Area and Timeframe



"This study was conducted in the forest garden area of Wat Phu Khao Thong, Nam Phut Subdistrict, Mueang District, Trang Province."

Materials

1. Measuring Tape
2. Soil Quality Test Kit
3. Random Sampling Table
4. Cu Smart Lens
5. Distilled Water
6. Filtration Funnel Set
7. Soil Chart
8. Clinometer
9. Beaker
10. Glass Rod Cu Smart Lens
11. Filter Paper
12. Test Tube
13. Multi-purpose Measuring Device
14. Tree Carbon Sequestration Assessment Website

Research Questions

1. "Study on the growth of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province."

2. "Study on the carbon sequestration of rubber trees and teak trees in the Phu Khao Thong Forest Garden, Trang Province."

3. "Study on how soil quality affects the amount of carbon sequestration in rubber trees and teak trees in the Phu Khao Thong Monastery Forest, Trang Province."



Research Results

Step 1

Chart showing the average height of rubber trees and teak trees.

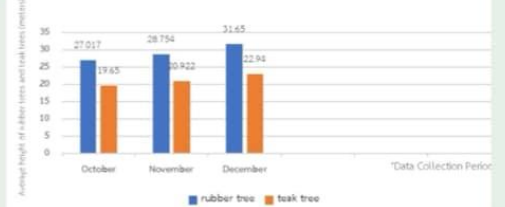
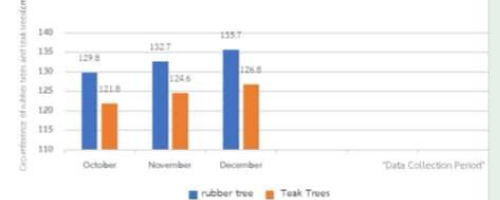
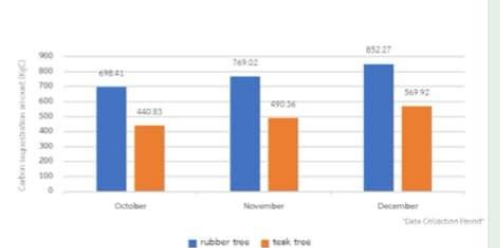


Chart showing the average circumference of Rubber tree and Teak tree.



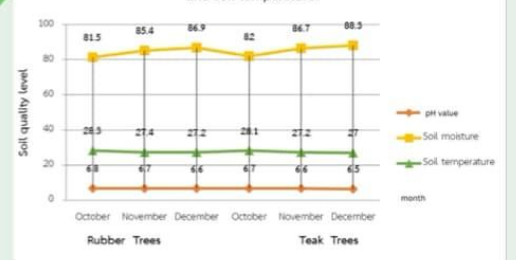
Step 2

Chart showing the average carbon sequestration of rubber trees and teak trees



Step 3

Graph showing the relationship between pH, moisture, and soil temperature.



Research Results

"The area where rubber trees and teak trees are planted has sandy loam soil with a granular structure that is compact. The soil pH is slightly acidic, and the soil temperature is similar across both areas. The soil moisture is high, and the mineral content in the soil around the teak trees is slightly higher than that around the rubber trees. Additionally, the study found that rubber trees have a greater average circumference and height than teak trees, indicating better growth and a higher capacity for carbon sequestration."

Reference

- "Department of Environmental Quality Promotion (2018). Calculation of Biomass and Carbon Sequestration in Trees. Retrieved on September 19, 2024, from <https://so05.tcithajip.org>
- Research article on Carbon Sequestration of Trees at Kasetsart University. Retrieved on September 18, 2024, from the website <https://geo.soc.ku.ac.th>
- Phinya Phusaksaesai et al. (2018). Report on the Study of Biomass and Carbon Sequestration of 4 Forest Plant Species at Rajabhat Ramphai Phani University."