A comparative study of carbon storage capacity of coconut and longan trees Ban Thung Sam Ko

Wichienmatu School

Abstract

A comparative study of carbon sequestration capacity between coconut and longkong trees at Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province, aimed to investigate the ability of longkong and coconut trees to absorb and store carbon from the atmosphere. The results showed that longkong trees store more carbon than coconut trees.

Keywords : Coconut trees, longkong trees, carbon sequestration.

Research Questions

Asking Questions

Do coconut trees and longkong trees have different carbon storage capacities, and if so, how?

Introduction

Content Knowledge

Global warming is caused by increasing greenhouse gases from human activities such as deforestation and fossil fuel use, leading to higher carbon dioxide levels. This study compares the carbon sequestration capacity of coconut trees (Cocos nucifera L. var. nucifera) and longkong trees (Lansium domesticum Corres). Both trees are easy to grow, grow quickly, and efficiently store carbon in their woody biomass, making them important for reducing atmospheric carbon dioxide and mitigating global warming

Research Methods

Planning INvestions

Deseribes the planning process

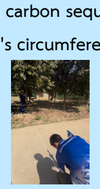
1: Count the number of coconut and longkong trees at Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province.

2: Measure 1.30 meters above the ground and then measure the circumference of the tree you wish to study.

3: Measure the distance from the tree to the point where the person measuring can see the top of the tree.

4: Use a clinometer to measure the angle observed from the observer's eye level to the summit, in order to calculate the tangent.

5: Calculate the total carbon content in the biomass using a tree carbon sequestration assessment website, based on the tree's circumference and height.



Carrying Out Investigations

Deseribes what happened

Table 1 shows the geographical coordinates of Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province

latitude 7.32915° and longitude 99.77111°.

GLOBE Badges

Be a STEM Storyteller

This study compares the carbon sequestration capacity of longkong and coconut trees in Ban Thung Sam Ko, Trang Province. The findings show that longkong trees store more carbon than coconut trees, highlighting their role in reducing atmospheric carbon and supporting environmental sustainability.

Be a Collaborator

The research was conducted through collaboration among students, teachers, and the local community. Teamwork in data collection and analysis helped integrate scientific knowledge with real environmental issues in the community.

Be a Data Scientist

Tree measurements were analyzed to estimate carbon storage. The results clearly indicate that longkong trees have a higher carbon sequestration capacity, demonstrating how data analysis supports evidence-based environmental conclusions.

Results

Analyzing Data

A comparative study of carbon storage capacity of coconut and longkong trees at Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province.

The table shows the amount of carbon stored by longkong trees

Longkong	Survey results		
Study point	height	circumference	Carbon content
Tree number 1	8.71 m.	110 cm.	169.56 kgC
Tree number 2	7.41 m.	63 cm.	50.70 kgC
Tree number 3	8.398 m.	106 cm.	152.73 kgC
Tree number 4	7.50 m.	46 cm.	28.27 kgC
Tree number 5	7.825 m.	85 cm.	94.10 kgC
average			99.078

The table shows the amount of carbon stored by coconut trees

coconut tree	Survey results		
Study point	height	circumference	Carbon content
Tree number 1	17.729 m.	90 cm.	94.30 kgC
Tree number 2	17.788 m.	103 cm.	94.56 kgC
Tree number 3	18.082 m.	94 cm.	95.52 kgC
Tree number 4	18.999 m.	90 cm.	99.74 kgC
Tree number 5	18.082 m.	91 cm.	95.83 kgC
average			95.99

Discussion

Interpreting Data

This environmental research project, "A Comparative Study of Carbon Sequestration in Coconut and Longkong Trees at Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province," would like to express its gratitude to Ban Thung Sam Ko, Laem Som Subdistrict, Palian District, Trang Province for providing knowledge and the location for data collection; to Mr. Sakda Paisomboon, Director of Wichianmatu School, for his support and assistance; to Mrs. Kwanjai Kanjanasrimek, Ms.Naeriya Tonkrongchan ,Ms.Chularat Singkaew, our environmental research advisor, for her guidance and information; and to all the teachers in the Science and Technology learning group at Wichianmatu School for their care and guidance. Finally, we thank our friends for their assistance in this environmental research.

Conclusions

Drawing Conclusions&Next Steps

Studies on carbon sequestration in coconut and longkong trees have shown that longan trees sequester more carbon than coconut trees. This is due to their greater height and circumference, which affects carbon storage capacity. Therefore, longkong trees have a higher potential to absorb carbon dioxide from the atmosphere and mitigate global warming than coconut trees.

Bibliography

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