

The Study of Water Quality in Oil Palm Plantation Area, Ba Vee Subdistrict, Hat Samran District, Trang Province.

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Abstract

The study on the water quality of natural sources in Ba Vee Subdistrict, Hat Samran District, Trang Province, was conducted between January and February 2025. The objective was to assess the water quality in this area by measuring key parameters such as dissolved oxygen, temperature, water transparency, and pH levels. The results revealed that the average pH level of the water was 7, the dissolved oxygen level was 6.33 mg/L, and the average water temperature was 21.67°C. The average water transparency depth was 15.67 cm. Based on these findings, the water quality was deemed suitable for the survival of aquatic plants, particularly sweet taro (main plant), red water fern (secondary plant), and vetiver grass (in some areas).

Introduction

Water is a natural resource that is an essential component of all living organisms, including plants, animals, and humans. Every living being requires water for survival, with humans especially needing clean water for consumption and use. Without sufficient water or if the water is contaminated, humans cannot survive. The water on Earth is primarily saltwater, making up 97.3%, while freshwater used by humans constitutes only 2.7%. This freshwater is divided into surface water, which accounts for only 1%, groundwater which accounts for 21%, and water in the air and soil, which cannot be directly utilized, making up 88%. Therefore, utilizing water resources requires proper planning and management, while also considering the water quality.

Research Question

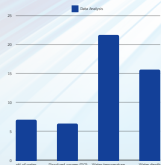
1. What is the water quality in the palm plantation area of Ba Vee, Hat Samran District, Trang Province?

Research Methods

This study analyzed the water quality of natural water sources in Ba Vee Subdistrict, Hat Samran District, Trang Province, by measuring pH, dissolved oxygen (DO), temperature, and water depth.

- Data Collection: Water samples were taken and measured using litmus paper, an oxygen test kit, a thermometer, and a measuring tape, with three repetitions to reduce errors.
- Procedure: Water samples were collected, quality parameters measured, and results analyzed for ecosystem suitability.
- Study Area: The research focused on Hat Ba Vee Subdistrict (7.285988°N, 99.611030°E), where aquatic plants like sweet taro, water purslane, and vetiver grass thrive.

Results



The study found that the average pH was 7, suitable for aquatic life and plants. The average dissolved oxygen (DO) was 6.33 mg/L, ideal for both plants and animals. The average temperature of 21.67°C supports ecosystem balance, and the average water depth of 15.67 cm favors the growth of aquatic plants like sweet taro, water purslane, and vetiver grass.

Conclusions

A study on the water quality of natural water sources in Ba Vee Subdistrict, Hat Samran District, Trang Province, found that the pH level was 7.0, supporting the growth of plants like sweet taro, water purslane, and vetiver grass. The average dissolved oxygen (DO) was 6.33 mg/L, which benefits aquatic plants and reduces root rot. The average water depth was 15.67 cm, and the temperature was 21.67°C, both suitable for the local ecosystem.

Future research should focus on long-term water quality monitoring, the relationship between water quality and biodiversity, and expanding studies to other water sources. Additionally, exploring aquatic plants for wastewater treatment could help sustain ecological balance.

Discussion

The study on water quality in Ba Vee Subdistrict, Hat Samran District, Trang Province, found it suitable for the ecosystem and aquatic plant growth. The average pH of 7.0 supports nutrient absorption, DO at 6.33 mg/L aids aquatic life, temperature at 21.67°C benefits plant metabolism, and water depth of 15.67 cm allows sufficient sunlight.

Overall, the water quality supports sweet taro, water purslane, and vetiver grass, confirming its suitability for aquatic plants and the ecosystem.

Bibliography

1. Understanding pH: The Acidity and Alkalinity of Solutions, Liquids, and Water. Retrieved from: <https://www.meritcs.co.th/pH/habit-ph-and-measurement.html>
2. Understanding Dissolved Oxygen and Its Importance to Living Organisms. Retrieved from: <https://www.meritcs.co.th/dissolved-oxygen/oxygen-in-water.html>