

Study of Water Quality and Changes in Water Efficiency after Adding Artificial Water Color in Water Sources Between Buildings 2 and 3 at Wichianmat School, Khok Lo Subdistrict, Mueang Trang District, Trang



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Abstract

This study aimed to study the physical water quality and properties of water in the water source between Buildings 2 and 3 at Wichienmatu School, Khok Lo Subdistrict, Mueang Trang District, Trang Province. Samples were collected between November 20, 2024 and January 22, 2025. Water samples were analyzed for cloud volume, iron volume, phosphate volume, nitrate volume, oxygen volume in water, temperature, electrical conductivity, water pH, and transparency.The results of the water quality study were normal, with cloud volume in the range of 67.81% Iron content is in the range of 0.1 mg/L Phosphate content is in the range of 0.1 mg/L Oxygen content in the water is in the range of 4.5-6 mL/L Water temperature is in the range of 26-29 degrees Celsius Electrical conductivity is in the range of 0.1-0.2 ms Acid-base value is in the range of 7.7-8.86 Water transparency is in the range of 49.3-86.0 Nitrate and copper content in the water are not found in the water source.

Research Question

- 1. Study the effect of artificial water color on living things whether it has an effect or not and how
- 2. Study the effect of adding artificial water color on the quality of water whether it is different before and after adding or not and how

Research Hypothesis

- 1. Artificial water color affects living things causing an increase in living things after adding artificial water color the number of living things increases
- 2. Artificial water color does not affect the quality of water causing no difference between before and after adding

Study area

In the water source area between Building 2 and Building 3,Wichienmatu School,Khok Lo Subdistrict, Mueang District,Trang Province



material



Acknowledgements

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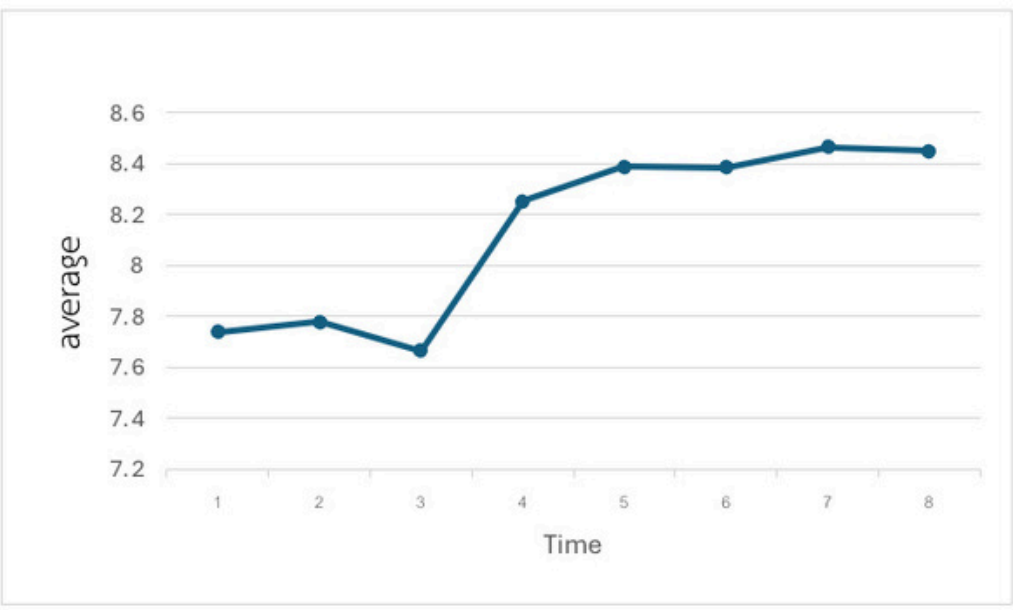
Experimental study procedure

- 1. Define sampling points and locations for measuring transparency and temperature.
- 2. Measure transparency with a Secchi disk and temperature with a thermometer.
- 3. Collect water samples to measure dissolved oxygen, iron, phosphate, nitrate, and copper.
- 4. Measure pH levels using a pH meter.



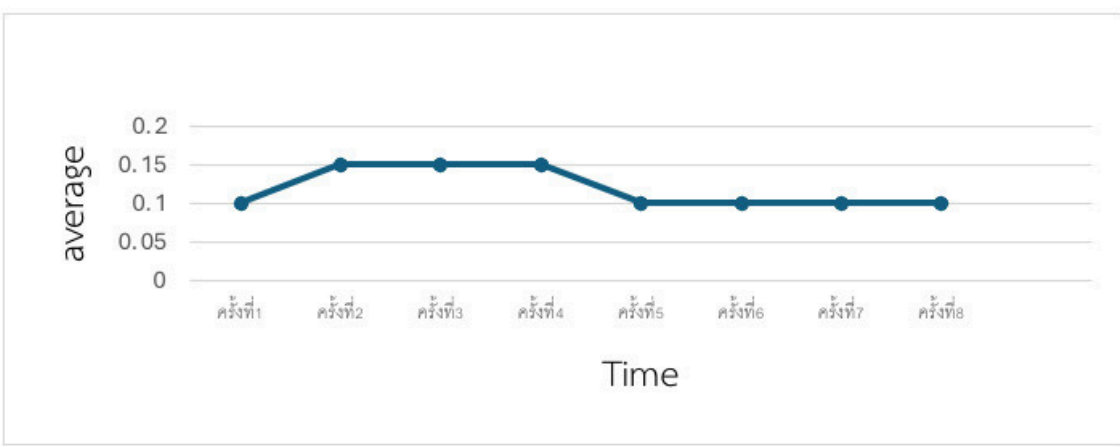
Experimental study results

	Price d/m/y	Cloudiness (%)	Transparency (cm)	Temperature (°C)	pH	Electrical (ppt)	Oxygen (mL/L)	Phosphate (mg/L)	Iron (mg/L)
27/11/2024		70	68.5	33	8.1	0.2	5.5	0.1	0.1
04/12/2024		70	63.6	26	7.74	0.1	6.25	0.1	0.1
11/12/2024		82.5	59.6	27.6	7.78	0.15	4.75	0.1	0.1
18/12/2024		100	69.65	27.2	7.67	0.15	5.75	0.1	0.1
25/12/2024		97.5	58.7	28.5	8.25	0.15	5.5	0.1	0.1
03/01/2025		57.5	65.8	28.5	8.4	0.1	6.5	0.1	0.1
06/01/2025		50	72.35	28.5	8.38	0.1	6.75	0.1	0.1
15/01/2025		40	64.75	28.5	8.47	0.1	5.75	0.1	0.1
22/01/2025		45	66.85	29.25	8.45	0.1	5.75	0.1	0.1

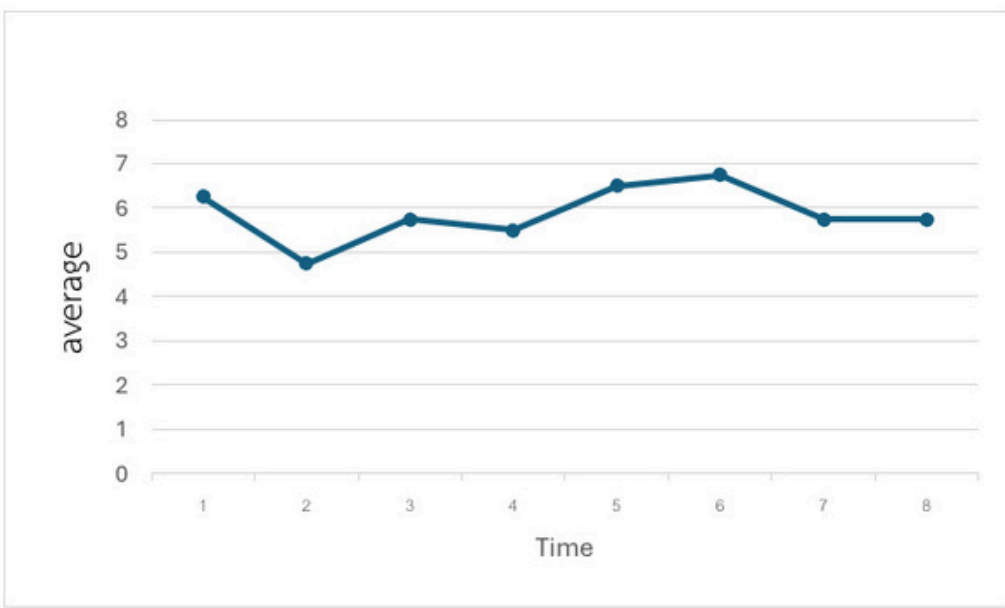


Before adding the substance, turbidity was 70%, conductivity 0.2 ppt, and dissolved oxygen 5.5 mL/L. After adding, turbidity decreased by 2.19%, conductivity dropped to 0.1 ppt, and oxygen fluctuated, while other factors remained constant.

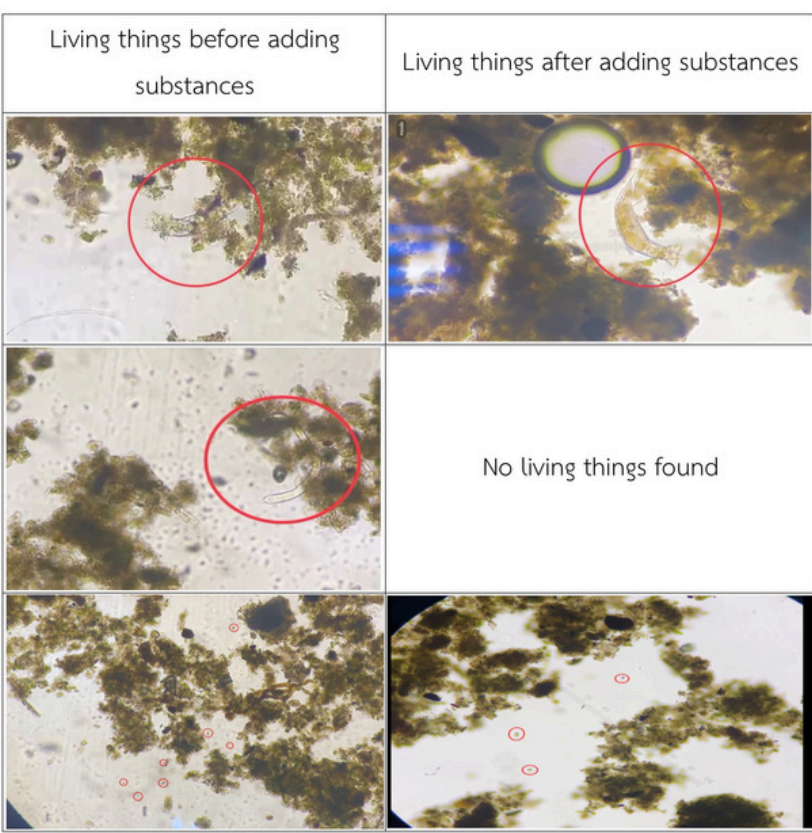
The pH was 7.74 in the first measurement, increased to 7.78, then decreased to 7.67, and continued to rise steadily.



The electrical conductivity started at 0.1 µ/cm, increased to 0.15 µ/cm, then decreased back to 0.1 µ/cm by the eighth measurement.



Oxygen started at 6.2 mg/L, dropped to 4.8 mg/L, then fluctuated, ending at 5.8 mg/L in the 7th and 8th measurements.



The study found that the artificial dye affected both the water and the organisms, both before and after being added. Before adding the dye, fewer organisms were found, while after adding the dye, the number of organisms increased. It can be concluded that adding artificial dye to the water helps aquatic life grow and develop better.

RefereSummary of experimental resultsnces

Before adding the substance, the water had 70% cloudiness, 0.2 ppt conductivity, 68.5 cm transparency, 33°C temperature, pH 8.1, 5.5 mL/L dissolved oxygen, and 0.1 mg/L of both iron and phosphate. After adding the substance, cloudiness dropped to 67.81%, conductivity to 0.1 ppt, transparency fluctuated (59.7-72.35 cm), temperature decreased to 26-29°C, pH varied (7.7-8.86), and dissolved oxygen ranged from 4.5-6 mL/L, while iron and phosphate remained unchanged. The synthetic color affected water quality and aquatic life, as more organisms were observed after adding the artificial color, suggesting it may support biological growth.

References

Kesaraporn Raknui, Kantinan, Sai-ngam, Thanchanok Pho-in (2022) Study of water quality and plankton diversity in Lam Pikun Canal, Yan Ta Khao District, Yan Ta Khao Subdistrict, Trang Province Chatchaporn Duangdara, Nichakorn Sripumbang and Angkana Suksongsa (2022) Water quality adjustment for the environment of Chonburi Sukbot School.