

PARTIAL PURIFICATION OF pH INDICATOR EXTRACTED FROM *Rhoeo spathacea*

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ABSTRACT

pH test papers are still utilized nowadays despite the prevalence of pH meters, because it is more convenient to use in measuring the pH of a certain substance. The use of natural dye as a pH indicator can serve as a good substitute for an expensive commercial dye that most high schools cannot afford. The pH test papers were prepared by impregnation of 0.03% pure dye extracted from *Rhoeo spathacea*. TLC was performed to partially remove other plant dye components from the pH active ingredient. The color transition chart was then created at pH ranging from 1.0-13.0 at one unit interval using phosphate buffer. The color transition chart of pure dye extract was compared to the color transition chart of crude dye extract at different pH.

Paper impregnated with 0.03% partially purified indicator dye extracted from *Rhoeo spathacea* showed color transitions from pink to red violet at pH 1.0-3.0; red violet to lavender at pH 3.0-4.0; lavender to blue at pH 4.0-7.0; blue to blue green at pH 7.0-8.0; blue green to green at pH 8.0-11.0; green to yellow green at pH 11.0-12.0; and yellow green to yellow at pH 12.0-13.0. Results also showed that the purified dye extract is a better pH indicator in comparison with the crude dye extract.

Spectrophotometric determination of pK_a of the indicator was unsuccessful due to the strong overlapping of the UV-Vis spectrum of the acidic and basic forms of the plant dye extract.

Titration results showed that the plant indicator can serve as a substitute for the methyl red and phenolphthalein indicators for strong acid-strong base and weak acid-strong base titration but not for weak acid-weak base titration.