

ABSTRACT

Rika Damayanti, NIM: 1534019, 2019,The different result of nitrate concentration analysis through preserved at $\text{pH} < 2$ and chilled at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ using UV-Vis Spectrophotometer. Bachelor Thesis, DIV Medical Analysis Study Program, Faculty of Medical Science, Universitas Katolik Musi Charitas Palembang.

Background: Nitrate is the main form of nitrogen source in the aquatic ecosystem. Nitrate is easily dissolved in water and has high stability. However, the maximum threshold of water containing nitrate is 10 mg/L. The nitrate analysis using brucine sulfate method is one of the most common methods to determine the concentration of nitrate in water. The analysis is conducted using spectrophotometer instrumentation with a specific wavelength of 410 nm. This present study aims to investigate the effect of sample preservation at high acidity ($\text{pH} < 2$) and chilling on $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ to the sensitivity of nitrate analysis using UV-Vis Spectrophotometer.

Method: The study is characterized as pre-experimental research with Static Group Comparison Study. The water sample is water obtained from the community wells of Resident Number (In Bahasa Indonesia: RT) 38; Resident Pillars Number (In Bahasa Indonesia RW) 09, Sub-Sub district Sukarame, Sub-district Sukarame, Palembang. The free variables used in this study are the chilling temperature at 4°C and adjusting to pH water sample to less than 2 ($\text{pH} < 2$), while the bound variable is the nitrate concentration. The method used to analyze the nitrate concentration is Brucin Sulfate (SNI 06-2480-1991). After analyzing the nitrate concentration, the obtained data is statistically analyzed using *Paired Sample t-test*.

Result: In the 1st day, the average nitrate concentration preserved at $\text{pH} < 2$ and chilled at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ are 0,9864 ppm and 1,1964 ppm, respectively. Furthermore, in the 14th day of preserved at $\text{pH} < 2$ and chilled at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, the nitrate concentration turns to 0,9706 ppm and 0,9237 ppm, respectively.

Conclusion: There is no significant difference in the nitrate analysis using UV-Vis Spectrophotometer where the water sample has been preserved at $\text{pH} < 2$ and chilled at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

Keywords: Nitrate Analysis, Preserved Approach, Chilling.