ABSTRACT

Water is a liquid that serves as a primary life necessity for every living being in the world. Water has numerous uses and benefits. One of its uses is for consumption, which is beneficial to fulfill the needs of the human body and other living creatures. Among its benefits is meeting the requirement for iron in the body. The level of iron content in water varies depending on the characteristics of the location. Another source of high iron content is found in vegetables, especially green leafy ones. Therefore, we have created a simple device that can read the iron content in water intended for consumption.

This device serves as an alternative solution for measuring the iron content in water, thus reducing the cost of iron testing when compared to using the Hanna HI721 Iron Checker device. This simple device is capable of performing readings on water using a light sensor through the spectrophotometric method. The purpose of this device is to determine the iron content in water as well as in specific substances. Excessive iron levels in consumed water can have negative impacts on the human body, such as organ failure. Another function of this device is to measure the iron content in plants that are consumed. In the testing of the provided tool, a test was conducted with 5 samples, comparing the values measured by the tool with the values calculated using linear regression for each sample. The goal was to determine the level of error and accuracy of the tool. The test results indicated that the tool has an average error rate of approximately $\pm5.336\%$ and an average accuracy rate of approximately $\pm94.664\%$.

Keywords: Water, Iron, Spectrophotometry, Resistance, Linear Regression