ABSTRACT

Ozone (O_3) is a triatomic molecule composed of three oxygen atoms, highly reactive, and has numerous applications. For instance, in potassium iodide (KI) solution, ozone reacts specifically to oxidize iodide (I^-) into iodine (I_2), resulting in measurable chemical changes. This study aims to develop an dissolved ozone measurement system using the BH1750 sensor and the Lambert-Beer law principle, based on an ESP32 microcontroller integrated with the Internet of Things (IoT). The system detects changes in light intensity due to the interaction between ozone and the KI solution, adhering to the Lambert-Beer law, and is calibrated using iodometric titration. The system testing results indicate that the developed system produces data comparable to iodometric titration results, with a determination coefficient (R^2) of 0.879. IoT is utilized to monitor measurement results in real-time, making it easier for users to access data without interfering with the measurement process in the laboratory. In conclusion, this design serves as an accurate, efficient, and practical tool for ozone concentration measurement in the laboratory.

Keywords: *Ozone, BH1750 Sensor, ESP32, Lambert-Beer's Law, IoT*