ABSTRACT

Fish farming in tarpaulin ponds faces challenges in maintaining optimal water quality for fish growth. Bacterial buildup and low dissolved oxygen levels can cause stress and even fish death, so innovation is needed in water management. This study aims to characterize the output of the DBD ozone generator and determine the values of water quality parameters (electrical conductivity, total dissolved solids, temperature, pH, and dissolved oxygen) after the application of ozone micro-nano bubble technology to fish farming in tarpaulin ponds. The methods used are characterization of the output of the DBD ozone generator, ozone solubility test in water with variations in flow rates (4.8, and 12 L/min), observation of water quality and fish survival and growth in ozone and non-ozone treatments. The results showed that ozonation with a flow rate of 12 L/min was the optimal flow, producing the highest ozone capacity (50.4 g/h) and optimal dissolved ozone concentration (±0.03 mg/L). The application of ozone micro-nano bubble technology in fish farming has been proven to improve water quality, with electrical conductivity values of 450-745 µs/cm, total dissolved solids values of 230-380 mg/L, temperature values of 25.5-26.9 ℃, dissolved oxygen concentration values of 5.8-10 mg/L, all of which are in accordance with water quality standards for catfish (Clarias gariepinus) farming. However, the water pH of 5.67-6.5 which is not in accordance with the standard has the potential to cause stress and inhibit the growth of catfish (Clarias gariepinus). Although ozone treatment does not significantly affect the weight and length of catfish (Clarias gariepinus), the survival rate of fish is higher compared to without ozone. Thus, ozone micro-nano bubble technology has great potential in improving the efficiency and sustainability of fish farming in tarpaulin ponds.

Keywords: *Fish farming, water quality, ozonation, micro-nano bubbles, tarpaulin ponds.*