

ABSTRACT

The treatment of wastewater from the tofu industry poses significant environmental challenges due to the high levels of Chemical Oxygen Demand (COD) and Biochemical Oxygen Demand (BOD) produced. The use of ozone (O₃), generated through a Dielectric Barrier Discharge (DBD) plasma reactor and combined with microbubble technology produced using a venturi-type microbubble generator, takes advantage of advanced oxidation reactions or the Advanced Oxidation Process (AOP). This research demonstrates a reduction in pollutant levels in 5 year old tofu wastewater. The aim of this study is to determine the degradation levels of BOD and COD, changes in pH, and odor in tofu liquid waste using microbubble technology containing ozone from a DBD plasma reactor. Through the ozonation process, the COD level was successfully reduced from 916.67 mg/L to 806.67 mg/L, representing a decrease of 11.99%. Additionally, the BOD level decreased from 293.4 mg/L to 238.8 mg/L, indicating a reduction of 18.6%. Ozonation also helped stabilize the pH from 5.7 to 6.4 and significantly reduced unpleasant odors from a scale of 10 to 3. Thus, this method offers an environmentally friendly wastewater treatment solution for the tofu industry.

Keyword :Ozone, DBD plasma, tofu wastewater, COD, BOD, microbubbles.