DECREASE NITRATE LEVELS OF SHRIMP POND WATER BY ELECTROCOAGULATION METHOD USING ALUMINIUM ELECTRODE

ABSTRACT

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This research was conducted to decrease nitrate levels of shrimp pond water by electrocoagulation method using aluminium electrode. The nitrate levels reduction process was performed on an electrocoagulation reactor equipped with cathode, anode and current source (power supply). In this research, variations voltage, time and time of electrocoagulation were observed use to determine the optimal conditions of nitrate levels reduction. The aluminum electrodes used were characterized using SEM-EDS. Then the sample of electrocoagulation process was analyzed by using UV-Vis Spectrophotometer and the resulting of sludge characterized using FTIR. The results showed that the optimum conditions of nitrate levels reduction level voltage, time and time of were 9 V, 75 minutes and 4 hours respectively, with nitrate levels concentration reduction in 72,90%, 71,92% and 69,65% shrimp pond water. The results of SEM-EDS characterization contain 52,93% aluminum purity and from the results of FTIR characterization there is an aluminum hydroxide compound $Al(OH)_3$.

Keywords: shrimp pond, nitrate, electrolysis, electrocoagulation, electrode aluminium.