REDUCE NITRATE (NO_3^-) CONCENTRATION IN SHIRMP POND WATER BY ELECTROLYSIS METHOD USING ALUMINIUM (Al) AND CARBON (C) ELCTRODES

ABSTRACT

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Research has been conducted to reduce nitrate concentration in shrimp pond water by electrolysis method using aluminum (Al) and carbon (C) electrodes. Decreasing nitrate concentration by electrolysis method was carries out with potential variation, electrolysis time, and flock dwelling time after electrolysis using aluminium electrodes as anodes and carbon electrodes as cathodes. Where the greater the potential and the longer the electrolysis time, the more decreasing nitrate concentrations occur, but the flock dwelling tme does not signicantly reduce the nitrate concentration. The optium conditions were obtained at 9 V potential, electrolysis time of 75 minutes and without flock settling after electrolysis, which resulted in a 68,14% percentage reduction in nitrate content. And electrolysis using carbon electrodes on the cathodes and anode with variations in electrical potential shows that the use of carbon-carbon electrodes (C-C) cannot be used to reduce the nitrat concentration of shrimp ponds. Electrodes wew characterized using Scanning Electron Microscope-Energy Dispersive X-Ray (SEM-EDX) with aluminum plate electrodes (100%) and battery carbon electrodes (98,31%). The resulting flock was characterized using the Fourier Transform Infra Red (FTIR). It was known that flock was a compound of $Al(OH)_3$. So that the reduction of nitrate (NO3-) in shrimp pond water can be done using aluminum and carbon electrodes (Al-C), but it cannot be done using carbon-carbon electrodes (C-C)

Keywords: Nitrate, Shrimp Pond Water, Electrolysis.