

## **Performance Evaluation of Electro-Coagulation Process Using Different Electrodes for Removing Hardness from Drinking Water**

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The presence of hardness in water is problematic when it comes to water treatment. Many different removal methods are in use for removing hardness from the water. However, each has its advantages and disadvantages. Amongst those, electrocoagulation has gained much attention as it outperforms other methods due to its simple and fast process. This study aims to investigate optimum pH and retention time to achieve maximum removal of hardness using the Electrocoagulation process using an aluminum anode and an iron cathode. The electrode area, the distance between two electrodes, and potential differences in the Electrocoagulation process were kept constant during all the experiments as in 30 cm<sup>2</sup>, 5 mm, 20 V respectively. The concentration of hard water, 500 ppm was synthetically prepared to mimic the concentration of hardness in groundwater in the Jaffna peninsula. The prepared solution was filled into the container and the Electrocoagulation process was run with changing initial pH and retention time. At the end of the experiments, the hardness of the water samples was measured by using EDTA titrimetric method. Experimental results showed a maximum hardness removal efficiency of 84% at initial pH 8.5 during 60 minutes retention time.

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