

Neutralization of Acidity (pH) and Reduction of Total Suspended Solids (TSS) by Solar-Powered Electrocoagulation System

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Abstract	<p>This study investigates the effect of electrocoagulation contact time on the pH and TSS of wastewater discharged from the wastewater treatment plant (WWTP) of the Psychiatric Hospital of West Java Province. The experiment followed the pretest-posttest control group design. This study involved testing 56 wastewater samples six times before and after treatment. Each treatment was repeated four times, and there was one control group for each repetition. The electrocoagulation tool used in this study consisted of six 1-mm electrode plates that were 8 cm apart, a current strength of 5A, a voltage of 12V, and a 50-Watt solar panel. The data were analyzed using descriptive and inferential statistics. The results showed that all electrocoagulation contact time treatments had a significant effect on increasing the pH and the TSS. Additionally, the electrocoagulation tool was found to be effective, stable, portable, and environmentally friendly, with a self-cleaning system that reduced operational costs and saved electricity through the use of solar panels. This study contributes to the development of an effective electrocoagulation toll for wastewater treatment and the determination of the optimal contact time for the tool, providing a practical solution to overcome the problems of pH and TSS in wastewater. These findings can be applied to other wastewater treatment plants, thus improving the quality of discharged wastewater.</p>
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