

ABSTRACT

ADSORPTION OF CADMIUM (Cd) IN SYNTHETIC WASTER USING KEPOK BANANA PEEL ADSORBENT BASED ON CONTACT TIME AND pH PARAMETERS (Stirring Speed 400 rpm)

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Industrial wastewater contains various hazardous substances, one of which is Cadmium metal which is harmful to human health. The adsorption method using Kepok banana peel adsorbent is used to reduce Cadmium metal content in the waste. This is based on the components contained in Kepok banana peel that can bind with metal ions. This study aims to determine the highest percent adsorption of Cadmium metal adsorption based on pH variation from 4 to 8 at contact times of 30 and 60 minutes using Kepok banana peel adsorbent at 400 rpm stirring speed. This study uses banana peel powder as adsorbent as much as 0.5 gram with the concentration of cadmium metal solution used is 5 ppm as much as 50 ml and the adsorption process is carried out at room temperature.

Based on the research that has been done, it can be seen that the highest average percent adsorption on Cadmium metal adsorption using Kepok banana peel adsorbent at a stirring speed of 400 rpm based on pH variations from 4 to 8, both at 30 and 60 minutes contact time is located at pH 8 with an average percentage of adsorption of 93.796% and 95.848%, respectively. The results of the Spearman Correlation statistical test show that there is a significant relationship between the pH value and the % adsorption value. This is evidenced by the sig. (2-tailed) obtained is $0.000 < 0.05$ (less than $\alpha = 0.05$) and the sign of the correlation coefficient is positive (+). The positive result shows that there is a unidirectional correlation, namely the higher the pH value, the greater the % adsorption value obtained. Conversely, there is no significant relationship between contact time and % adsorption. This is evidenced by the sig. value obtained which is $0.631 > 0.05$ (greater than $\alpha = 0.05$) so that the 30-minute contact time is more effective than the 60-minute contact time.

Keywords: pH, Adsorption, Heavy Metal, Cadmium, Kepok Banana Peel, Percent Highest