

ABSTRACT

PERCENT ANALYSIS OF Cd ADSORPTION USING KEPOK BANANA PEEL WASTE BASED ON VARIATIONS IN CONTACT TIME AND pH (Stirring Speed 350 rpm)

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The ever-increasing industrial development results in the release of heavy metals into waters, this can cause serious environmental problems and is very dangerous for living creatures because heavy metals have carcinogenic properties. Cadmium is the seventh most toxic heavy metal. An alternative that can be used to overcome heavy metal contamination is to use the adsorption method. This method is effective for removing heavy metal contamination, has high efficiency, is cost effective and the process is relatively simple. Kepok banana peel adsorbent contains pectin and cellulose compounds which can bind metal ions because they contain carboxylic groups (-COOH) and hydroxyl groups (-OH). Contact time and pH are factors that influence heavy metal adsorption. The contact time used in this research was 30 and 60 minutes, while the pH variations used were 4, 5, 6, 7, and 8. This research aims to determine the highest adsorption percentage required for Kepok banana peel adsorbent in reducing cadmium metal levels. The highest adsorption percentage at a contact time of 30 or 60 minutes was obtained at pH 8 with an adsorption percentage of 96.73% and 96.48%. Based on the Spearman Correlation statistical test, it was found that there was a significant relationship between pH and percent adsorption, both at a contact time of 30 minutes and a contact time of 60 minutes and the results of the correlation coefficient were 0.982 and 0.984 which had a positive value (+), so it was a unidirectional correlation where The more the pH value increases, the greater the adsorption percentage obtained, meanwhile contact time does not have a significant relationship to percent adsorption, so a contact time of 30 minutes was chosen as the optimum contact time for efficient working time.

Keywords: Cadmium, Adsorption, Kepok Banana Peel, pH and contact time