

ABSTRACT

***ADSORPTION CAPACITY ANALYST ON Pb AND Cd USING KEPOK
BANANA PEEL ADSORBENT
(Musa paradisiaca L.)
(Initial Concentration of Metal 25, 50, and 60 ppm)***

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The growth of the industrial sector is growing rapidly in line with the progress and development of science and technology, and has positive and negative impacts. Water is the most important substance in life after air. The negative impact of industrial development is an increase in the volume of waste that can pollute the aquatic environment. Liquid waste contamination that is generally found in waters is heavy metals which are very dangerous for living things because they can damage aquatic habitats and ecosystems, and are toxic and carcinogenic substances. To reduce heavy metal contamination from industrial processes, a biosorption method has been developed. Kepok banana peel has great potential as an adsorbent to remove toxic metals.

The adsorption process of lead (Pb) and cadmium (Cd) with banana peels can be influenced by several factors, namely pH variations, mass variations, contact time, initial concentration of metal solution, stirring speed. In this study, the adsorption capacity of lead (Pb) and cadmium (Cd) was analyzed using kepok banana peel adsorbents. Before the adsorption process is carried out, the adsorbent is prepared. The adsorbent used was kepok banana peel, after the preparation of the adsorbent was completed, capacity analysis was started with initial metal concentrations of 25, 50 and 60 ppm.

In this study the average adsorption capacity at initial metal concentrations of 25, 50, and 60 ppm for Pb metal was 1.851 mg/g, 3.554 mg/g, and 4.322 mg/g, and the average adsorption capacity results metal Cd respectively of 2.149 mg/g, 4.490 mg/g, and 5.569 mg/g. Thus the highest adsorption capacities for Pb and Cd metals were achieved at an initial metal concentration of 60 ppm. The graph continues to increase as the initial metal concentration increases. The increase in adsorption capacity along with the increase in the initial metal concentration is caused by the higher ion concentration meaning that the number of dissolved ions is also greater, so that the greater the number of ions adsorbed on the activated carbon/adsorbent.

Keywords: Adsorption, Banana Peel, Metal Lead (Pb), Metal Cadmium (Cd), Initial Concentration of Metal.