

ABSTRACT

ADSORPTION CAPACITY ANALYSIS OF METALS IN BINARY Pb/Cd SYSTEM USING ADSORBENT BANANA KEPOK (*Musa paradisiaca L.*)

(Initial Metal Concentrations 150, 180, and 200 ppm)

Putri Sulistyowati

Environmental pollution caused by the disposal of untreated waste often causes serious problems for the health, safety and life of living things both on land and in waters. One of these environmental pollutions is pollution by heavy metals such as cadmium, lead, copper, zinc, and mercury. One of the methods used is adsorption technique which is a cost-effective method to remove heavy metals in wastewater. Waste in water does not only have one metal, so it is necessary to do research on metal adsorption in Binary Systems. The factor that is considered in this study is the initial metal concentration, which is very important because low concentrations will result in a short time to reach equilibrium. So the purpose of this study was to determine the highest metal adsorption capacity in the Pb/Cd binary system using the Kepok Banana Peel as an adsorbent with initial metal concentrations of 150 ppm, 180 ppm, and 200 ppm. Samples were analyzed quantitatively by Atomic Absorption Spectrophotometry (AAS). The highest metal adsorption capacity in the Pb/Cd binary system using Pisang Kepok peel as an adsorbent with initial concentrations of 150 ppm, 180 ppm, and 200 ppm was achieved at an initial concentration of 200 ppm for Pb/Cd metal. The results of the tests that have been carried out show that the final metal concentration has increased. Pb metal showed the highest adsorption capacity of 7.641%, while Cd metal showed the highest adsorption capacity of 6.325%.

Key words : Atomic Absorption Spectrophotometer (AAS), Binary System, Metal Adsorption Capacity, Pb, Cd, Banana Kepok Peel