Removal of Heavy Metals from Water in the Presence of Organic Wastes: Fruit Peels

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Abstract : In this experiment, our goal was to remove heavy metals from water. Most recent studies have used removing toxic heavy elements: Cu^{+2} , Cr^{+3} and Fe^{+3} ions from aqueous solutions has been previously investigated with different kinds of plants like kiwi and tangerines. However, in this study, three different fruit peels were used. We tested banana, peach, and potato peels to remove heavy metal ions from their solution. The first step of the experiment was to wash the peels with distilled water and then dry the peels in an oven for 48 hrs at 80°C. Once the peels were washed and dried, 0.2 grams were weighed and added into 200 mL of %0.1 percent heavy metal solutions by mass. The mixing process was done via a magnetic stirrer. Each sample was taken in 15-minute intervals, and absorbance changes of the solutions were detected using a UV-Vis Spectrophotometer. Among the used waste products, banana peel was the most efficient one. Moreover, the amount of fruit peel, pH values of the initial heavy metal solution, and initial concentration of heavy metal solutions were investigated to determine the effect of fruit peels.

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