Banana Peel Sorption of Cations

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Finding a sustainable, cost effective, and environmentally friendly sorption source will prove useful for cleaning contaminants from water supplies, especially for third world countries. The intent of this project was to determine whether banana peels, a common fruit waste, would fulfill these criteria. Banana peels, a common fruit waste, removed dissolved cations and other solids such as copper and zinc from water. Because banana peels contain nitrogen, sulfur, and carboxylic acids which are negatively charged, they attract cations which are positively charged. Dissolved metal ions in tap water exposed to cut pieces of banana peels were reduced by as much as 99.99% in 10 minutes. The pH level, initial sorption dose, and contact time were used to determine the maximum sorption conditions. This project suggests that banana peels are a sustainable, effective, inexpensive, and practical sorption source for removing dissolved solids from contaminated water.

Awards Won: