SABA BANANA (*Musa acuminata*) PEEL AS BIOSORBENT OF CHROMIUM (Cr) HEAVY METAL FROM AQUEOUS SOLUTION

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ABSTRACT

ABRACIA, ROSE MARIE C., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **June 2023**, **"SABA BANANA (*Musa acuminata*) PEEL AS BIOSORBENT OF CHROMIUM (Cr) HEAVY METAL FROM AQUEOUS SOLUTION"**

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The production of food for humans and animals, as well as industrial and agricultural processes, all depend increasingly on clean water. As a result of rapid industrialization, heavy metals including chromium are in our waterways. The goal of this study was to help with the search for less expensive water treatment methods, that is why Saba Banana Peels are used as a biosorbent. SBP has a rough structure with small openings and holes on its surface which increased the surface area and allowed pores to diffuse during the adsorption process. The adsorption experiment conducted reveals that the amount of chromium ions adsorbed is from 1966.67mg/L to 7966.67mg/L, and as the initial ion concentration rises, so does the amount of adsorbed ions. Also, the uptake capacity of the SBP biosorbent is from 98.33mg/g to 398.17mg/g, and it was observed that uptake capacity increases as the initial concentration of chromium increases. For the percentage of adsorption, it starts from 98.33% and stops at 99.59% after 48 hours of contact time. Which indicates that percentage of Cr (VI) removed from aqueous solution increases when the chromium concentration also increases, it was concluded that SBP is a potential biosorbent for heavy metal like chromium which can be commonly found in wastewaters.

Keywords: biosorbent, saba banana peels, Chromium (VI), heavy metal

INTRODUCTION

Background of the study

Earth is covered by water, and it is necessary for all living things to survive. It supports the growth of the economy, the production of food, and human health. Despite the abundance of water, it is still difficult to get access to safe drinking water. Water that is unsafe or contaminated with toxic or dangerous substances should not be consumed by plants or animals because it puts their health at risk. The environment has been under significant stress for the past century, and water pollution has gotten worse as industries have expanded and developed quickly.

Water pollution is defined as the release of contaminants into surface groundwater, lakes, streams, rivers, estuaries, and oceans to the point where they prevent ecosystems from functioning normally or prevent beneficial uses of the water. It can occur because of the discharge of energy into bodies of water as well as the release of substances such as

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