EVALUATION OF DIFFERENT POROUS CARBON FOR ELIMINATING IMPURITIES IN BIOETHANOL FROM MOLASSES

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ABSTRACT

PACAG, MARY JOY G., PADON, ALDREN D., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Munoz, Nueva Ecija, Philippines, **JUNE 2023, EVALUATION OF DIFFERENT ACTIVATED CARBON IN ELIMINATING ODOR IN BIOETHANOL FROM MOLASSES.**

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The Pandemic has brought about many problems in the society. Ethanol, the main ingredient in the manufacture of hand sanitizer, had shortages in supply. An alternative source of this material is the bioethanol produced from the fermentation of molasses. The distilled product, however, has a foul odor and cannot be used as hand sanitizer, rubbing alcohol, or disinfectant. There must be another process to remove the foul odor caused by the by-products, such as aldehydes and ketones. This study focused on using porous carbon from coconut, rice husk, and bamboo as adsorbents. The foul odor was removed by adding porous carbon at different concentrations and shaking for 12 hours. UV-Vis spectrophotometric analysis of the filtered bioethanol shows that the bamboo charcoal significantly decreased the peak for aldehydes and ketones while the coconut and rice husk carbon did not. The Fourier transform infrared (FTIR) spectroscopic analysis and the scanning electron microscopy (SEM) confirmed the bamboo carbon's ability to adsorb the bioethanol impurities. In conclusion, bamboo carbon can be utilized to remove impurities in bioethanol produced from the fermentation of molasses.

Keywords: bioethanol, activated carbon, biochar, odor

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