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Original Article

THE EFFECT OF INCUBATION TIME ON BIOETHANOL PRODUCTION FROM SOME FOOD PEEL WASTES

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ABSTRACT

This study focused on optimization of bioethanol production yields from some readily available food peel wastes of little or no significance. This was done through the observance of the bioethanol yields at different incubation time intervals. The considered substrates were pineapple peels, plantain peels and banana peels. Simultaneous saccharification and co-fermentation strategy was the production process that was employed after the substrates were subjected to physicochemical pretreatment. In the process, the pretreated substrates were simultaneously inoculated each with Trichodermaressi, S. cerevisiae and P. stipitis inoculums under aseptic condition. They were then incubated on a shaker at an agitation rate of 150 rpm at 38°C. Samples were drawn at 24, 48, 72 and 96 hour intervals and were tested for their bioethanol contents. Forty eight (48) hours fermentation time gave the highest bioethanol yield for pineapple peels while seventy two (72) hours fermentation time gave the highest bioethanol yield for banana and plantain peels.

KEYWORDS: Bioethanol, Food-Peel Wastes, Optimization, Saccharification, Co-Fermentation, Trichodermaressi, S. Cerevisiae, P. Stipitis

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