Analysis of the Catalytic Behavior of *Osyris Alba* Bark and *Indigofera Amabelacensis* Lea Extract in Ethanoic and Lactic Fermentation

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Abstract

One of the traditional methods employing indigenous science amongst the Aembu commu Kenya is fermentation. The Aembu community mastered the art of hastening fermentatio indigenous science. The fermentation process naturally occurs spontaneously though the pr quite slow. To optimize the fermentation process, high-temperature systems and enzyn used. However, these processes are quite expensive and lead to increased production costs notwithstanding the importance attached to the fermentation process in food, dairy, brewery, pharmaceutical, chemicals and biofuels synthesis. *Osyris alba* bark and *Ind amabelacensis* leave extracts were traditionally used to hasten saccharification and fermenta biomass during the preparation of communal alcohol. This study aimed at exploiting the po of these two extracts in catalyzing ethanoic and lactic fermentation at ambient temp conditions. The extracts were fused into maize and sorghum flour (ethanoic) and milk fermentation) in 1.5-liter batch reactors. The reactors were monitored for 30 days while assessing the amount of CO_2 gas produced. The products were qualitatively screened by Iod and Benedict's methods as well as infra-red spectroscopy. The products were quanti analyzed by ultraviolet-visible (UV-VIS) spectroscopy and gas chromatography (GC) techniqu results indicated that the catalyzed samples generated 3-to-5-folds more CO_2 gas compared control samples. These findings were supported by the qualitative tests done which show catalyzed samples began producing ethanol and lactic acid before the control sample catalyzed lactic fermentation setup produced more lactic acid (2.79µg/L) compared to the one (1.48µg/L). Catalyzed ethanoic fermentation setups yielded 11.55% (sorghum) and 2.16 ethanol while the control samples had negligible ethanol concentrations under similar condit

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