

Functional Properties of Yeasts Isolated from Sorghum Motoho

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Abstract

Motoho is a fermented sorghum beverage prepared at household level by spontaneous fermentation. Products of spontaneous fermentation have inconsistent sensory, nutritional, and microbiological quality. Yeasts have been isolated from African fermented cereals and reported to confer nutritional, health and sensory properties. However, their presence and role has been poorly investigated as many studies have focused on lactic acid bacteria. The objective of this research was to isolate and determine the yeast population in sorghum motoho samples from two geographical regions with the aim of identifying potential adjunct starter cultures. Two inoculum and two motoho samples were sourced from communities in Eastern Cape and Free State. A total of 200 yeast isolates were isolated and identified using matrix-assisted laser desorption ionization time-of-flight analysis (MALDI-TOF). The isolates were stored in 50% glycerol at -80°C. Yeast counts in the samples ranged from 5.9 to 6.8 Log₁₀ colony forming units/mL. The yeast species identified were *Saccharomyces cerevisiae*, *Wickerhamomyces anomalus*, *Pichia fermentans*, *Geotrichum candidum*, *Kluyveromyces marxianus*, *P. membranifaciens* and *Rhodotorula mucilaginosa*. The results obtained reveal that both non-*Saccharomyces* and *Saccharomyces* species are involved in the production of motoho. This research gives us, for the first time an idea of the yeast population found in motoho and motoho inoculum from different parts of South Africa. The yeasts isolated in this research will be studied to identify and develop functional starter cultures for the enhancement of food safety, nutritional and health properties of traditional fermented cereals.