

Microorganisms in "PITO" Fermentation

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"Pito" is a traditional beer drank by a substantial population of the people of the West African subregion. This beer is made by fermenting Sorghum malt extract with a heterogenous population of yeasts. The fermentation process, which is not much controlled, results in a product of non-uniform quality varying in acidity and alcohol content amongst other factors. There are few if any scientific literature available on the process or products of this beer.

An attempt has been made to isolate, characterise and identify the microorganisms present in the fermentation of Pito. A variety of yeast strains including Saccharomyces, Pichia, Torulospira, Torulopsis, Candida and Tricosporon species were isolated, with Saccharomyces species being predominant. Actidione and Nystacin resistant strains of Torulopsis were isolated and found to be strong fermenters of glucose and sucrose. Strains of Pichia species were isolated from media incubated at 45°C and found to be strong fermenters of glucose and sucrose. Using maltose as the carbon source in a preliminary screening test, it was found that over 50% of the yeasts isolated were capable of fermenting a 10% maltose broth to above 5% alcohol(v/v). High acid producing strains of both cocci and rod-shaped bacteria were also isolated from differential media. Mixed culture fermentation in which bacteria were inhibited with antibiotics yielded higher final ethanol values than those without the inhibition of bacteria.

Isolation of Indonesia Fungus Which Produces Raw Starch Digesting Amylase

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With the present need for raw starch digesting enzyme fungi obtained from palm tree and sago starch processing sites were screened for raw starch digestion amylase. The screening was done by growing the fungus on medium with 3 % as carbon source.

Out of 52 strains of fungi isolated, seven were found to have raw starch digestion ability. After testing and comparing the activity of their crude enzymes on starch from various sources, their glucoamylase and α -amylase activity and conditions required for optimum activity, isolate No. 24 was selected as the best source of raw starch digestion amylase. It was identified to be Penicellium brunneum.

Crude enzyme production was carried out on 42 % wheat bran, 4 % rice hull, 4 % sago starch and 50 % water medium incubated at 30 °C for 7 days. Crude enzyme from Penicellium brunneum could convert 5 % of raw starch solution to glucose and 25 % of raw rice solution to glucose.