

ABSTRACTFermentation of corn and palmyrah fruit pulp for the alcohol and citric acid productionGlucose from Corn

The optimal thermostable alpha amylase concentration for liquefaction was 0.2% (V/V) when 40% (W/W) corn flour was treated with this enzyme at pH 7.0 and at 90 - 95°C for 1h. The dextrase equivalent (DE) improved when liquefaction was followed by saccharification with glucoamylase at pH 4.5 and 40°C for 24h. When saccharification by glucoamylase was supplemented with commercially available enzymes like cellulases, proteases and pectinases, there was no improvement in the rate of filtration. The rate of filtration improved when the hydrolysate was treated with activated charcoal. However, the application of these β -glucanases and proteases reduced the dry weight of the undigested solid matter.

Citric acid fermentation

Aspergillus niger (CISIR N₄) and A.niger 41874 (NRRL 599) were tested for citric acid production in a minimal medium containing 5% (W/V) of glucose. A.niger (41874) was found to be suitable for this production.

Due to prolonged power failure the citric acid production on local raw materials such as corn hydrolysate and palmyrah fruit pulp could not be carried out as scheduled earlier.

Alcoholic fermentation

The mechanical extraction of fruit pulp was developed. The extracted fruit pulp has 8 - 10% reducing sugar (by weight). About 90% of this sugar was transformed into alcohol by a strain of Saccharomyces cerevisiae isolated locally from grapes.