D-21 Isolation of raw starch hydrolysing fungi

S Nimali de Silva. C Deepal Mathew
Dept of Biochemistry, Faculty of Medicine, University of Colombo, Colombo 8

Ethanol produced from raw starch can be used as a supplement for petroleum. Raw starch hydrolysing alpha amylase and glucoamylase save the energy required for gelatinizaiton and saccharification of starch and will make ethanol from raw starch a viable alternative for petroleum.

Raw starch utilizing fungi were isolated using culture medium of raw cassava slices and cassava in salt solution. Thirteen fungi species were isolated. From these 3 fungal species 96/A, 96/J and 96/K showing highest raw starch hydrolysing activity were used for detailed studies.

Fungi 96/A showed maximum raw starch hydrolysing alpha amylase activity at 36 h of 39 mU/ml. The wet weight increased from 0.4 mg/ml to 23.6 mg/ml in 96 h. Glucoamylase activity for raw starch was not observed while for soluble starch maximum activity of 196 mU/ml was observed at 84 h.

The fungi species 96/K showed maximum alpha amylase activity for raw starch of 6.7 mU/ml at 12 h. Maximum glucoamylase activity for raw starch of 147 mU/ml was observed at 12 h while maximum activity for soluble starch of 294 mU/ml was also observed at 12 h. The wet weight increased from 0.017 mg/ml at 12 h to 17.8 mg/ml at 96 h.

The fungi 96/J showed maximum alpha amylase activity for raw starch of 16 mU/ml at 12 h. Maximum glucoamylase activity for raw starch of 25 mU/ml was observed at 72 h while for soluble starch a maximum of 140 mU/ml was observed at 84 h of cultivation. The wet weight increased from 0.3 mg/ml at 12 h to 20.8 mg/ml during the cultivation period.

Studies of the end product analysis showed all 3 species produce glucose as the main product after 96 h of cultivation. 96/A, 96/J and 96/K were identified by slide culture method to be *Aspergillus, Fusarium* and *Penicillium* species respectively.