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Production and Characterization of B-D-Fructofuranosidase from *Aspergillus niger*

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ABSTRACT

Production, effect of production parameters, partial purification and characterisation of β-D-fructofuranosidase from Aspergillus niger isolated from grape fruit juice and soil samples obtained from sugarcane dumpsite was investigated. A total of twenty-two fungi isolated from the samples were screened using solid and submerged fermentation. The best β-D-fructofuranosidase producer was selected and identified as Aspergillus niger. 30 oC, pH 6, 168 hours incubation time, potato peels, sucrose and peptone supported the highest β-D-fructofuranosidase production by Aspergillus niger. Invertase production ranged from 18.3% - 25.5% when different carbon sources were used. Potato peels and sucrose supported the highest production. Invertase production ranged from 22.5 - 43.3% when different nitrogen sources were used. Peptone supported the highest production. The partially purified β-D-fructofuranosidase produced by Aspergillus niger had a lower activity (12.9%) compared to the crude β-D-fructofuranosidase with the enzyme activity of 35.2%. The crude and partially purified Invertase from Aspergillus niger had the highest activity at 30 oC and pH 3.8. Sucrose at 2% concentration supported the highest β-D-fructofuranosidase activity of the partially purified enzyme. The values of Km and Vmax were 0.692 and 36.23 respectively. In conclusion, Aspergillus niger isolated from soil sample from sugarcane dumpsite is a good Invertase producer.

Keywords: Aspergillus niger, β-D-fructofuranosidase, Carbon source, Grape fruit juice,Sucrose

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