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SCREENING OF *ASPERGILLUS* SPECIES FOR β-GLUCOSIDASE ACTIVITY

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β-Glucosidase is an important component of the enzyme complex responsible for the conversion of cellulose to glucose and its deficiency not only limits the conversion of cellobiose to glucose but also inhibits other enzymes of the complex due to the accumulation of cellobiose.

Eleven Aspergillus isolates were screened on solid media using the Esculin-Ferric ammonium citrate system[1] for β-glucosidase activity. Nine substrates (wheat bran, sugarcane bagasse, rice straw, starch, starch + salicin, cellobiose, cellulose, glucose and salicin) were tested as inducers for enzyme production. All isolates screened showed a positive β-glucosidase reaction in at least five of the nine substrates tested.

Liquid culture experiments with one of the screened Aspergillus isolates (A-1) in modified Czapek Dox medium containing wheat bran, bagasse, rice straw or cellulose showed that A-1 produced higher β-glucosidase activity compared to the Trichoderma isolate (IMB-Tr). IMB-Tr is a better β-glucosidase producer than the proven cellulotyic fungus T. reesei[2].

The Aspergillus isolate A-1 appears to have potential for β-glucosidase production.

References

1. Cuskey, S.M. et al (1980) Screening for β-glucosidase mutants of Trichoderm reesei with resistances to end-product inhibition. Developments in Industrial Microbiology, 21 471-480.
2. Peiris, P.S. and Silva, I. (1985) Saccharification of rice straw by Trichoderma enzymes. Proc. Sri Lanka Ass. Adv. Sci. 42 (1)