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“Development on the margin”

Amylase from *Aspergillus fumigatus* Associated with Deterioration of Rice (*Oryza sativa*)

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Abstract

In recent years the new potential of using microorganisms as biotechnological sources of industrially relevant enzymes has stimulated renewed interest in the exploration of extracellular enzymatic activity in several microorganisms. Starch degrading enzymes like amylase have received great deal of attention because of their perceived technological significance and economic benefits. In the work reported here *Aspergillus fumigatus* was subcultured on potato dextrose agar slants incubated at 25°C for 72 hours. The spores on the surface of the agar medium were dislodged by carefully scraping them with sterile inoculating loop. *A. fumigatus* grew in a medium containing rice. Cultures of the filtrate exhibited amylase activity. Amylase activity was determined using the modified method of Pfueller and Elliot (1959). Maximum enzyme activity was observed on the 5th day of incubation. Amylase activity was determined by measurement of dextrinized power which is a measure of the change in the blue colour of starch-iodine complex due to decrease in the amount of starch. The effect of temperature on the enzyme was examined. The activity of the enzyme was optimum at 35°C and pH 6.0, the enzyme was heat labile losing its activity completely after thirty minutes of heating at 80°C. The cations Al³⁺ and Fe³⁺ stimulated the activity of the amylase. P-chloromercuric benzoate and iodoacetamide inhibited enzyme activity. There was a gradual increase in the amylase activity as substrate concentration increased. Optimum activity was observed at 1% starch concentration. Amylase activity gradually declined as period of heating increased. Activity was completely lost at 30 minutes.

Keywords: Amylase, *Aspergillus*, deterioration of rice