

SECTION D

D - 06

ISOLATION, PURIFICATION AND BIOCHEMICAL STUDIES OF AMYLASES FROM *ASPERGILLUS FUMIGATUS*

G. S. Widanapathirana and H. M. Chandana Shantha Kumara
(Department of Botany, University of Kelaniya)

Several fungi which grew as contaminants on decaying manihot, cooked rice and bread were isolated in pure cultures and screened for the production of amylases. After a preliminary screening a fungus identified as *Aspergillus fumigatus* was selected for further studies. Paper chromatographic studies of culture filtrates of *Aspergillus fumigatus* showed that glucose and maltose are the only end products formed by the fungus on starch medium. This evidence probably shows that both alpha amylase and glucoamylase are produced by this fungus. The amylase enzymes in the culture filtrate were concentrated by ammonium sulphate precipitation, and dialysis and separated by DEAE cellulose DE 23 column chromatography using a buffer gradient. (0.02 M-0.08 M acetate buffer). The fractions that showed enzyme activity were re-chromatographed on the DEAE cellulose DE 23 column. Finally, two active fractions were obtained by Sephadex G 200 gel filtration, column chromatography, Starch digestion experiment, amylase, amylopectin, maltose digestion experiment, molecular weight studies, electrophoretic mobility determinations and kinetic studies of the two purified enzyme fractions were carried out. These studies confirmed that *Aspergillus fumigatus* secretes both alpha amylase and glucoamylase.