

ISOLATION OF LIPOLYTIC FUNGI AND PARTIAL PURIFICATION OF LIPASES

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Biodegradation is a natural process that occurs in the environment. The process helps to keep the environment clean and support the recycling of the macro and micro elements. Biodegradation is done by the enzymes secreted by the microorganisms, fungi and bacteria. Research on microbial enzymes is important, because biological enzyme catalyzed reactions are more efficient, require less energy and pollution is low, and therefore, have variety of applications in biotechnology.

From the decaying leaf litter samples five morphologically different fungal colonies A, B, C, D and E were isolated using spread plate and streak plate method. PDA (Potato Dextrose Agar) was used as the medium. When analyzed for lipase secretion on agar plates, fungi C, D and E were found to be lipase secretors. According to the common morphological characters fungi C, D and E were identified as *Aspergillus* species, but external appearance was different from one to another. From the DNA sequencing results C and D were identified as *Aspergillus niger* strain DF09002 and E was identified as strain N (HQ 891666.1) When the lipases of the three fungi were obtained by culturing them in liquid medium and assayed for activities using DMPTB (thioester of 2,3-dimercapto-1-propanol tributyrate) and DTNB (Ellman's reagent) method fungus E was found to secrete highest amount of lipase, and therefore, selected for further studies.

Fungus E lipase was partially purified by NH_4SO_4 precipitation and ion exchange chromatography on CM cellulose. When eluted with a 1 M NaCl linear gradient the enzyme was eluted from the CM cellulose column as sharp peaks in three different fractions. It is likely that the fungus E secrete more than one lipase. Further studies on characterization of these lipases could be important in the field of Biotechnology.