

Isolation, Characterization and Screening of Extracellular Enzyme Production from Soil Fungi

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ABSTRACTS

Biodiversity refers to the variability of life on Earth, all the living species of animals, plants and microorganisms. According to Hawksworth (2002), fungi are a major component of biodiversity, essential for the survival of other organisms and are crucial in global ecological processes. Contributing to the nutrient cycle and maintenance of ecosystem, fungi play an important role in soil formation, soil fertility, soil structure and soil improvement. They decompose organic matter from humus, release nutrients, assimilate soil carbon and fix organic nutrients. Fungi produce some important enzymes like Amylases and Proteases that work as a defense mechanism, protecting the plant from other insects by breaking down their cell walls. With the advent of new frontiers in biotechnology, the spectrum of amylase and protease application has expanded into many new fields, such as clinical, medicinal and analytical chemistry. Fungal amylases have not only been used in fermentation processes, but also in industries. Proteases account for nearly 60% of the industrial enzyme market and have wide applications in many industries viz., textiles, detergents, food processing especially for cheese ripening, meat tenderizing, animal nutrition, pharmaceuticals, paper industry and food industry. Hence, the present study was conducted with an aim to characterize amylase and protease producing strains from soil fungi. During the course of study, soil from different areas was taken, serially diluted and inoculated for 48 hrs on fungal specific media. 15 fungal strains were obtained after purification of which 7 got purified and were named TS-01 to TS-07, respectively. Pure strains were identified microscopically and then tested for production of amylase and protease by growing on starch and gelatin as substrates respectively. Strains TS-01, TS-05, TS-06 & TS-07 gave positive results for production of both enzymes. Upon quantitative assay of amylase and protease, TS-01 gave best result for amylase test with enzymatic index 2.53; while TS-02 gave best result for protease with an enzymatic index of 4.

Keywords: Biodiversity, Soil fungi, Amylase, Protease