

Abstract

This study involves the isolation, screening, and identification of fungal isolates for the production and optimization of alpha amylase. The alpha amylase producing fungal strains were isolated from soil samples collected from various locations of Lahore, Punjab, Pakistan. In total, 70 fungal isolates were isolated, out of which 50 isolates showed amylase production. The amylase producing fungal isolates were subjected to secondary screening using solid state fermentation and fungal isolate (NAK-44) showed maximum amylase production. i.e. (113 U/ml \pm 0.02). After chemical characterization, the isolated fungal strain was identified as *Aspergillus sp.*. Various parameters of cultural conditions such as incubation time, temperature, pH of the medium and inoculum size were studied and optimized for the maximum production of alpha amylase. Our results showed that enzyme production was maximum (164 U/ml \pm 0.07) after 72 hours of incubation, pH 6 at 35°C. At optimized conditions, diluent containing different concentrations of carbon and nitrogen sources were utilized to visualize the effects on the alpha amylase production. The starch is considered to be the best carbon source for maximum activity of amylase as evident from substrate utilization activity i.e. 78.20%. Among different inorganic and organic sources of nitrogen, NH₄N03(%w/v) gave maximum alpha amylase production i.e. (173.2 U/ml).