

ABSTRACT

Actinomycetes are facultative thermophilic group of gram-positive bacteria which produce the antibiotics and a range of hydrolytic enzymes including amylases. In the present study bacterial strains were screened for their potential to produce α -amylase. Growth of *actinomycetes* and amylase production was optimized on four different nutrient media. Highest growth and amylase activity were obtained by using medium-4 containing (glycerol, sodiumchloride, Arginine monohydrochloride, Magnesium Sulphate, Zinc sulphate, Manganese sulphate, Ferrous sulphate, Copper Sulphate, Dipotassium hydrogen phosphate). Conditions for the maximum production of amylase in submerged culture fermentation were optimized in shake flask using medium-4. Growth and amylase production were then optimized by using agro-industrial waste as sole source of carbon and nitrogen. Three agro-industrial wastes namely soybean meal, wheat bran and molasses were used individually. Soybean meal and wheat bran were found to be more effective nutrients. The enzyme was purified by ammonium sulphate precipitation and gel filtration. Production of amylase under optimized condition was finally carried out on bioermenter. Maximum enzyme production was obtained; through submerged culture fermentation; after 72 hours of incubation, by AH-II strain of *Actinomycetes*, at pH 8.50, temperature 50°C and agitation speed of 150 rpm.