ABSTRACT

An alkaline protease enzyme was produced from gelatin as substrate through submerged fermentation in 250 ml conical flask by *Aspergillus niger PCSIR-1* under static conditions. Gelatin substrate was analyzed for total proteins and ash content and formulated with different carbohydrate sources for protease production. Different fermentation process parameters were optimized for maximum protease production. Maximum Protease production was obtained when the organism was grown in the media formulated with glucose (0.5%) at 35 °C for five days at pH 6 i.e. 137.37 PU/ml. The optimized inoculum size was 3% v/v and the media depth was optimized at 15mm. The crude fermented broth was used to study different analytical aspects (Cell biomass, Total protein and Enzyme assay). The enzyme produced was characterized. It was assayed quantitatively as well as qualitatively. Properties of the isolated protease enzyme performed well at alkaline pH. It showed maximum proteolytic activity 410.91 PU/ml at pH 10 by using Glycine-NaOH buffer, showing the alkaline nature of the enzyme. Optimum temperature for proteolytic activity was found at 60 °C for 15 minutes. Substrate (casein) concentration for maximum proteolytic activity was measured 1.5%.