



**Production and Properties of Fibrinolytic Enzyme from
Schizophyllum commune BL 23**

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Abstract

Schizophyllum commune BL 23 was cultivated for the production of fibrinolytic enzyme under submerged culture. The cultural medium, incubation period and initial pH of the culture medium, as well as cultivation temperature and shaking speed affected growth of the fungus and fibrinolytic enzyme production. The maximum growth and fibrinolytic enzyme activity were achieved when *S. commune* BL 23 was cultured in peptone yeast extract glucose medium with the initial pH of 6.0 at 35°C under shaking speed of 150 rpm for 7 days. The maximum biomass and the fibrinolytic activity were 8.93 g/l and 576.73 units, respectively. The protein fraction precipitated from 80% ammonium sulfate saturation showed the highest fibrinolytic activity (150,720 units/ml). It was found, during dialysis, that ammonium sulfate activated the fibrinolytic activity. The purity of the partially purified enzyme was increased 86 fold after using anion exchange chromatography (DEAE-Sephacel) and the fibrinolytic activity of 11,794 units/ml was obtained. The protein band from native polyacrylamide gel electrophoresis (Native PAGE) showed the fibrinolytic enzyme activity. The partially purified enzyme showed the maximum activity at 50°C. Fibrinolytic enzyme was stable at 30°C for 60 days, however, the stability maintained for 48 hours in the temperature range of 40-50°C. The enzyme activity was totally lost at 60°C. The enzyme was stable in the pH range of 5.0-11.0 at 28°C for 20 minutes. After 48 hours of incubation, its stability was found in the pH range of 6.0-9.0. Fibrinolytic

activity was inhibited by 1,10-phenanthroline and EDTA and its activity was gradually decreased with increasing the concentration of EDTA. Hg^{2+} totally inhibited the enzyme activity. However, its activity was not inhibited by PMSF and SBTI. The results indicated that the enzyme is a metalloprotease.

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