

ABSTRACT

In the present study, production of ergot alkaloids was observed from *Penicillium commune* through submerged fermentation technique. In this research, the effect of different parameters e.g. different substrate concentration, different concentrations of peptone, K_2HPO_4 , $MgSO_4 \cdot 7H_2O$, $ZnSO_4$, $FeSO_4$, different inoculum sizes, different levels of pH, carbon sources, nitrogen sources and different temperatures on the production of ergot alkaloid was studied. Identification of ergot alkaloids was also studied with the help of spectrophotometer and thin layer chromatography technique (TLC). As a result of TLC pinkish purple colour was appeared which indicated the presence of ergo-cryptine. Best alkaloid production ($0.322\mu\text{g/ml}$) was obtained when 15g of substrate (sucrose) was used. 10ml of inoculum gave best ergot alkaloid production which was $0.311\mu\text{g/ml}$. Carbon source, mannose (15g) gave best alkaloid production ($2.316\mu\text{g/ml}$) and in case of nitrogen sources, peptone (15g) supported the alkaloid production to maximal level which was $2.836\mu\text{g/ml}$. However, effect of some other parameters such as peptone, (25g), K_2HPO_4 (2.5g), $MgSO_4 \cdot 7H_2O$ (0.5g), $FeSO_4$ (2.5g) and $ZnSO_4$ (0.5g) gave best alkaloid production to maximum level which was $0.763\mu\text{g/ml}$, $1.718\mu\text{g/ml}$, $0.329\mu\text{g/ml}$, $0.280\mu\text{g/ml}$ and $0.231\mu\text{g/ml}$ respectively. The optimal condition such as pH (5.0) gave maximal alkaloid production which was $2.287\mu\text{g/ml}$ and temperature (30°C) gave best result that is $0.309\mu\text{g/ml}$.