

EFFECT OF DIFFERENT INDUCERS ON ACID PROTEASE PRODUCTION BY *ASPERGILLUS NIGER* IN SOLID MEDIUM

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When *Aspergillus niger* CISIR N4 was grown in a solid basal medium containing (g kg^{-1}) KH_2PO_4 (0.5); FeSO_4 (0.01); MgSO_4 (0.5), KCl (0.5); NH_4NO_3 (3.0); soy flour (20.0); starch (15.0) and rice bran (903.0) at 30°C , $417.3 \text{ SU g DMB}^{-1}$ (Dry Mouldy Bran) clotting and $9.0 \text{ PU g DMB}^{-1}$ proteolytic activities were obtained at 48 h. To increase the acid protease production, different inducers (tryptone, gluten, sodium glutamate, casein and egg albumin, 20 g kg^{-1}) were added to the basal medium. Highest clotting ($1410.9 \text{ SU g DMB}^{-1}$) and proteolytic ($28.3 \text{ PU g DMB}^{-1}$) activities were obtained at 48 h in the basal medium containing gluten followed by casein, tryptone, sodium glutamate and egg albumin. Hence, the optimum gluten concentration was determined. When gluten concentration was increased from 0.0 to 10 g kg^{-1} clotting activity was increased from 597.6 to $1718.4 \text{ SU g DMB}^{-1}$ while the proteolytic activity was increased from 22.0 to $29.8 \text{ PU g DMB}^{-1}$. However further increase in gluten concentration above 10 g kg^{-1} led to the decrease in clotting and proteolytic activities production. Further, increase in gluten concentration above 5.0 g kg^{-1} reduced the time taken for the production of maximum clotting and proteolytic activities from 48 h to 40 h. From these results $10 \text{ g gluten kg basal medium}^{-1}$ was selected as the optimum concentration. Decrease in the production of clotting and proteolytic activities in basal medium containing the gluten concentration of 10 g kg^{-1} or could be due to the limitation of nitrogen source (soy flour). Thus the optimized gluten concentration was taken with different concentration of soy flour in the basal medium. Increase in soy flour concentration from 0 to 200 g kg^{-1} increased the proteolytic and clotting activities from 14.0 to $275 \text{ PU g DMB}^{-1}$ and 327.7 to $1728.2 \text{ SU g DMB}^{-1}$ respectively. Hence 200 g soy flour was added to $1.0 \text{ kg basal medium}$ instead of 20 g , with 10 g kg^{-1} gluten.