

## ABSTRACT

The present study deals with the bioconversion of L-Tyrosine into 3, 4-dihydroxyphenyl-L-alanine (L-DOPA) by *Aspergillus oryzae* NRRL-2220. Different agricultural by-products were tested for the production of L-DOPA by shake flask technique. Among these Soybean meal extract at the level of 100mg/ml gave the maximum yield of cell mass (36.5 mg/ml) and L-DOPA (1.55mg/ml). The production of L-DOPA was reached optimum at 48h after inoculation. The production of cell mass and L-DOPA was found to be enhanced (44.8 mg/ml and 2.0 mg/ml respectively) when glucose (7.5 mg/ml), as carbon source and  $\text{NH}_4\text{H}_2\text{PO}_4$  (0.5 mg/ml), as nitrogen source were used in the fermentation medium. Corn steep liquor concentration (7.5 mg/ml) was also optimized for increased L-DOPA synthesis (2.11 mg/ml). The optimum pH for mycelium development was 4.5 while L-DOPA production was maximum at pH 3.0 of the reaction mixture. The bioconversion of L-Tyrosine into L-DOPA took place in the reaction mixture using mould mycelium (100mg/ml) as a source of tyrosinase under acidic conditions. Optimum time, temperature and L-Tyrosine concentration were 60 minutes 55 °C and 3.0 mg/ml respectively. The kinetic parametric study ( $Y_{p/x}$ ,  $Q_p$ ,  $Q_x$  and  $q_p$ ) indicated that the yield of L-DOPA by biomass formation as well as the rates of L-DOPA formation was highly significant at the above mentioned conditions.