

ABSTRACT

The present study is concerned with the optimization of cultural and nutritional conditions for the production of lipase by *Rhizopus oligosporus* T^u31. Studies were carried out in 250 ml Erlenmeyer flasks by submerged fermentation. A medium M5 containing (g/l) peptone, 30; glucose, 10; K₂HPO₄, 2; NaNO₃, 0.5; KCl, 0.5 and MgSO₄.7H₂O, 0.5 was suitable for optimum yield of lipases. The production of enzyme was significantly improved when starch at a level of 0.6 %, casein 0.6 % and (NH₄)₂C₂O₄ 0.8 % were supplemented to the fermentation medium. The optimum inoculum size was 1.0 ml (4.63 X 10⁷ spores) per 20 ml of fermentation medium. The production of enzyme was reached optimum 48 hours after inoculation. Maximum extracellular and intracellular lipase activities and dry cell mass were found to be 7.48 ± 0.02ⁿ U/ml and 1.94 ± 0.02ⁿ U/g and 0.79 ± 0.01ⁿ g respectively during the course of study. The pH 7.0 was found optimum for the production as well as for the activity of enzyme. However, 30°C was selected for the production of enzyme while enzyme was more active at 40°C.