INFLUENCE OF CARBON AND NITROGEN SOURCES ON PRODUCTION OF A LIPASE FROM Cryptococcus flavus


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Microbial lipases have a wide industrial application with great diversity of study, including biodiesel production. Nowadays, there are not publications about the production of Cryptococcus flavus lipase, yeast that produces some enzymes with potential for biotechnological applications. In this work the influence of addition of carbon and nitrogen sources on lipase production was evaluated. It was also evaluated the residual enzyme activity in the presence of different organic solvents. The lipase activity was measured using a spectrophotometric assay using p-nitrophenil palmitate (pNPP) as substrate. Consecutive optimization of the nitrogen (yeast extract), carbon sources (glucose) and inducers (Macauba pulp oil) enhanced positively the lipase activity to 130U/mL at 96 hours of cultivation, at 25°C and pH 6.0 in optimal conditions. The soybean, corn and Macauba pulp oil were the most efficient inducers for the lipase production of while Pequi oil had an inhibitory effect. The yeast extract and glucose were the best nitrogen and carbon sources for the lipase production, respectively. Finally, the addition of hexane and methanol in the assay mixture in concentrations of 0-10% (v/v) increased the lipase activity, while ethanol had inhibitory effect. In this work was possible to verify the importance of nitrogen and carbon sources on production of lipase and determinate the influence of organic solvents in residual activity of enzyme. We thank the University of São João Del Rei – Campus Centro Oeste, Divinópolis, MG for providing all the material, equipment and facilities to carry out the project.

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