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CHARACTERIZATION, PARTIAL PURIFICATION AND CULTURE CONDITION OPTIMIZATION OF *CLADOSPORIUM* SP LIPASE

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Lipases are enzymes which are capable of catalyzing the hydrolysis of fats and oils producing free fatty acids and glycerol. Lipases with specific processing characteristics are used in many industries and are in great demand. In the present study culture conditions of *Cladosporium* sp. fungus were optimized for lipase production and secreted lipase was partially characterized. Lipase activity was measured by using p-nitrophenol palmitate as the substrate and the concentration of the p-nitrophenol released in reaction was determined by measuring optical absorbance at 410 nm. Submerged culture in a medium which contained essential nutrients and carbon source was used to produce lipase from the fungus. Culture conditions were optimized for the carbon source, carbon source percentage and different nitrogen source. Crude enzyme produced from optimized culture was screened for lipase activity by using phenol red chromogenic medium. Crude enzyme was subjected to fractionation by ammonium sulphate precipitation and DEAE-cellulose column chromatography. Partially purified enzyme was characterized for optimum temperature, optimum pH, stability and for inhibitors and activators. Olive oil with 0.5% w/v concentration and 1% w/v yeast extract were observed as the best carbon source and the nitrogen source respectively for lipase production in cultures. During Ammonium sulphate fractionation of the crude enzyme, high activity was observed in 50% ammonium sulphate precipitate. Dialyzed ammonium sulphate precipitates were run through the DEAE-cellulose column and eluted with NaCl salt gradient. Fractions with high activity were used to characterize the enzyme. It was observed that optimum temperature and pH for the partially purified enzyme activity were 40 ^{o}C and 8 respectively. Enzyme activity was stable up to one hour at room temperature at pH 8.0. EDTA has inhibitory action towards the enzyme activity most probably due to its metal ion chelating ability. In conclusion, *Cladosporium* sp secrete extracellular lipase and it has optimum activity at 40 ^{o}C and pH 8. Further characterization and purification could be useful for future application of this lipase.