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Production and Characterisation of Lipase from a Novel Streptomyces.sp - Its Molecular Identification

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Abstract : The biological function of lipase is to catalyze the hydrolysis of triacylglycerols to give free fatty acid, diacylglycerols, mono-acylglycerols and glycerol. They constitute the most important group of biocatalysts for biotechnological applications. The aim of the present study was to identify the lipolytic activity of Streptomyces sp. From soil sample collected from the sacred groves of southern Kerala. The culture conditions of the isolate were optimised and the enzyme was purified and characterised. The purification was attempted with acetone precipitation. The isolate observed to have high lipolytic activity and identified to be of Streptomyces strain. The purification was attempted with acetone precipitation. The purified enzyme observed to have an apparent molecular mass of ~60kDa by sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE). The enzyme showed maximum activity at 60oC and pH-8. The lipase showed tolerance towards different organic solvents like ethanol and methanol that are commonly used in transesterification reactions to displace alcohol from triglycerides contained in renewable resources to yield fatty acid alkyl esters known as biodiesel.

Keywords : lipase, Streptomyces, biodiesel, fatty acid, transesterification
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