

## Partial Purification and Characterization of Lipase From Galip Nut (*Cannarium indicum* L.)

This study aims to characterize lipase of galip nut (*Cannarium indicum* L.). The stages of research in this study included: germination of galip nut, isolation of crude lipase extract, partial purification of lipase with ammonium sulfate fractionation and dialysis, lipase activity assay, effect of sprout length, optimization of temperature and pH of lipase, determination of molecular weight, effect of metal ions, effect of organic solvents, and effect of surfactants. The lipase samples were obtained from various germination phases starting from early imbibition phase to germinated seeds. The lipase sample was precipitated stepwise with 0-25%, 25-50%, 50-75%, and 75-100% saturated ammonium sulfate. Lipase activity of galip nut was 0.94 U/mL with a specific activity of 0.14 U/mg. The optimum temperature and pH of lipase galip nut were at 30°C and pH 7. SDS-PAGE analysis revealed the crude extract consisted of five major protein bands. Metal ions Cu<sup>2+</sup>, DMSO (dimethyl sulfoxide), Tween-80 and Triton x-100 increase lipase activity while metal ions Na<sup>+</sup>, Zn<sup>2+</sup>, Mg<sup>2+</sup>, Fe<sup>2+</sup>, DMF (dimethyl formamide), acetonitrile, DCM (dichloromethane), ethyl acetate, diethyl ether, SDS (sodium dodecyl sulfate), SLS (sodium lauryl sulfate), and SD (sodium deoxycolate) reduce the activity of the lipase.

Keywords: lipase, galip nut, characteristics of lipase, partial purification

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