Isolation Of Endogenous Fungal Isolate Producing Extracellular Lipase with Potential in Olive Oil Hydrolysis.

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- **Abstract:** In order to establish a successful process of enzymatic hydrolysis of olive oil, the following objectives have been designated: Screening for potential fungal strain producing a significant amount of extracellular lipase from indigenous soil samples and application of the crude lipase preparation in olive oil hydrolysis. Twenty-three fungal strains producing extracellular lipase were isolated from indigenous soil samples on PDA plates. The extracellular crude lipase produced by the MR11(1) fungal strain identified as Rhizopus species was used in olive oil hydrolysis experiments. Maximum hydrolysis degree of olive oil of 98.8% was achieved after 24 hours' hydrolysis when 1:6 ratios (v/v) non-aqueous to aqueous phase reaction was operated at 30-40 C and 500 rpm stirring speed. The optimum concentration of enzyme in the aqueous phase was found to be 140 U crude enzyme per gram olive oil adjusted to pH 7.0 using phosphate buffer and the optimum non-aqueous phase contained 1.0 g of olive oil. Increment in oil content resulted in less hydrolysis degree and longer time reaction. However, the results showed that addition of different hydrophobic organic solvents (0.5 mL/ g olive oil) to the nonaqueous phase reduced the hydrolysis degree even though when added to the assay mixture enhanced the enzyme activity. Further study of the crude lipase from MR11(1) isolate including enzyme characterization and production optimization were recommended.

- Keywords: Enzymatic hydrolysis, Hydrolysis degree, Rhizopus species, Phosphate buffer