

## **Enzymatic synthesis and characterization of palm-based kojic acid ester.**

### **ABSTRACT**

Kojic acid ester was synthesized from acyl donor (fatty acid/palm oil) and kojic acid by esterification using lipase as a biocatalyst in an organic medium. Analysis of the product using GC and FTIR showed the presence of kojic acid ester. The gas chromatography-mass spectrometry (GC-MS) analysis and <sup>1</sup>H-NMR and <sup>13</sup>C-NMR spectral data confirmed the molecular structure of the kojic acid ester. Among the enzymes tested, lipase from *Pseudomonas cepacia* gave the highest synthetic specific activity. Oleic acid was found to be the best substrate with which to produce the ester in acetonitrile. The optimum conditions for the synthesis of kojic acid derivatives using *Pseudomonas cepacia* lipase were time, 24 hr, temperature, 50°C, amount of enzyme, 0.15 g, solvent of log P = -0.33, mole ratio of 4 (kojic acid/oleic acid), with no added water, no control of water activity and oleic acid as substrate.

**Keyword:** Esterification; Lipase; *Pseudomonas cepacia*; Synthesize; Kojic acid ester.