

**Project title: ISOLATION AND CHARACTERIZATION OF LIPASE FROM SEED AND
CAKE OF *JATROPHA CURCAS***

Teerawit Waratrujiwong, Kittirat Saharat, Porawee Pramoolkit and Panadda Punseethong

Abstract

Cake of *Jatropha curcas* oil seed is waste product derived from mechanically grinding and pressing process that still remains toxic substances. To recover lipase enzymes from seed or cake of *Jatropha curcas*, our experiment was started with isolation and partial purification by the combination of hexane extraction and ammonium sulfate precipitation (at 30% and 50% saturation). The zymogram analysis was used for lipase activity detection by 4-methylumbelliferone (MUF)-butyrate as substrate that showed the molecular weight of lipase from seed or cake which was about 39 and 25 kDa. However, zymogram analysis was confirmed again with olive oil as substrate and the result indicated that only lipase with molecular weight at 25 kDa was detected. Furthermore, Lipases extracted from seed or cake showed highest rate when used to hydrolyze *Jatropha curcas* oil rather than olive oil and palm oil. Besides, this study provided significant data that lipase activities from either seed or cake were similar in efficiency and could be an alternative source to produce lipase enzymes that are useful in various biotechnological industries including reduction of toxic waste from *Jatropha*-biodiesel manufacture.

Keywords: Lipase, Zymogram analysis, Lipolysis, *Jatropha curcas*