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KEY WORD : BOD / LIPASE / LIPID / PRODUCTION / *PSEUDOMONAS AERUGINOSA* / WASTEWATER

BOONCHUTA KUHASANTISUK : PRODUCTION AND POTENTIAL APPLICATIONS OF LIPASE FROM *PSEUDOMONAS AERUGINOSA* LP602.

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A lipolytic bacterial strain LP602 was isolated from lipid-riched wastewater from a restaurant. It was identified as *Pseudomonas aeruginosa*. The optimum condition for growth and lipase production in Nutrient Broth of *P. aeruginosa* LP602 was at 30°C with shaking at 200 rpm. General properties of *P. aeruginosa* LP602 lipase were studied. The lipase exhibited a wide range of specificity to commercial and purified triglycerides. The bacterium showed abilities to metabolize many kinds of lipids and inorganic nitrogens. It could survive in lipid-riched wastewater and helped reducing BOD value of the wastewater from restaurant by approximately 94.1% at the 8th day of cultivation. Lipids in this wastewater could be completely removed after 5 days. The cell-free lipase could also reduce BOD value of the restaurant wastewater by approximately 85.2% and completely eliminated lipid from the wastewater after 3 days of incubation at 37°C. Furthermore, *P. aeruginosa* LP602 could also be used for bioremediation of oil-polluted water. The lipase production of *P. aeruginosa* LP602 could be improved by cultivation in the developed medium containing minimal medium P, 6.25%(V/V) whey, 1%(V/V) soybean oil and 0.5% (W/V) yeast extract with an addition of glucose to a final concentration of 0.1%(W/V) at 12th hour of cultivation. The activity obtained was approximate 3.6 folds higher than that obtained from the NB culture.