

เอกสารอ้างอิง

- ปราณี อ่านเปรื่อง. 2547. เอนไซม์ทางอาหาร. พิมพ์ครั้งที่ 3. กรุงเทพฯ : โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย.
- โสภา พรหมวงศ. 2543. การผลิตโไมโนเอซิกลีเซอรอลจากการกลีเซอโรไลซ์ของน้ำมันปาล์มโดยเอนไซม์ไลเปสต์รูป. วิทยานิพนธ์วิทยาศาสตรมหาบัณฑิต. มหาวิทยาลัยสงขลานครินทร์.
- ไฟจิตร จันทร. 2530. คู่มือการใช้ประโยชน์และตรวจสอบคุณภาพของน้ำมันพืชและน้ำมันพืช 52 ชนิด. กรุงเทพฯ : โรงพิมพ์ครุสภากาดพร้าว.
- อาภัสสรา ชุมิดท. 2537. ลิพิด. ใน ชีวเคมี. หน้า 187-217. กรุงเทพฯ : เค.ยู.เพลส.
- Balcao, V.M., Piava, A.L. and Malcata, F.K. 1996. Bioreactors with immobilized lipase : State of art. Enzyme Microb. Technol. 18 : 392-416.
- Bellot, J.C., Choisnard, L., Castillo, E. and Marty, A. 2001. Combining solvent engineering and thermodynamic modeling to enhance selectivity during monoglyceride synthesis by lipase-catalyzed esterification. Enzyme Microb. Technol. 28 : 362-369.
- Bornscheuer, U. T. 1995. Lipase-catalyzed syntheses of monoacylglycerols. Enzyme Microb. Technol. 17 : 578-589.
- Bornscheuer, U. T. and Yamane, T. 1994. Activity and stability of lipase in the solid-phase glycerolysis of triolein. Enzyme Microb. Technol. 16 : 864-869.
- Bradford, M. 1976. A rapid and sensitive method for the quantification of microgram quantities of protein utilizing the principle of protein-dye binding. Annual. Biochem. 72 : 248-254.
- Chang, P. S. and Rhee, J. S. 1991. Continuous glycerolysis of olive oil by *Chromobacterium viscosum* lipase immobilized on liposome in reversed micelles. Biotechnol. Bioeng. 38 : 1159-1165.
- Conteron, A., Martinez, M. and Aracil, J. 1998. Reaction of olive oil and glycerol over immobilized lipases. J. Am. Oil. Chem. Soc. 75 : 657-660.
- Damstrup, M.L., Jensen, T., Sparso, F.V., Kiil, S.Z., Jensen, A.D. and Xu, X. 2005. Solvent optimization for efficient enzymatic monoacylglycerol production based on a glycerolysis reaction. J. Am. Oil. Chem. Soc. 82 : 559-564.
- Gandhi, N. N. 1997. Application of lipase. J. Am. Oil. Chem. Soc. 74 : 621-634.

- Gilbert. E. J. 1993. *Pseudomonas* lipases: biochemical properties and molecular coining. Enzyme Microb. Technol. 15 : 634-636.
- Goto, M., Hatanaka, C. and Masahiro, G. 2005. Immobilization of surfactant-lipase complexes and their high heat resistance in organic media. Biochem. Eng. 24 : 91-94.
- Hui, Y. H. 1996. Palm oil In Bailey's Industrial Oils and Fats Production. Vol II : Edible oil and fat : Oil and oil seeds, pp. 271-367. New York : John Wiley and Sons, INC.
- Jackson, M. A. and King, J. W. 1997. Lipase-catalyzed glycerolysis of soybean oil in supercritical carbon dioxide. J. Am. Oil. Chem. Soc. 72 : 103-106.
- Kaewthong, W. 2004. Continuous production of monoacylglycerol by glycerolysis of palm olein with immobilized lipase. Doctor of Philosophy Thesis in Biotechnology. Prince of Songkla University.
- Kaewthong, W. and H-Kittikun, A. 2004. Glycerolysis of palm olein by immobilized lipase PS in organic solvents. Enzyme Microb. Technol. 35 : 218-222.
- Kaewthong, W., Sirisansaneeyakul, S., Prasertsan, P. and H-Kittikun, A. 2004. Continuous production of monoacylglycerols by glycerolysis of palm olein with immobilized lipase. Process Biochem. 40 : 1525-1530.
- Kamlangdee, N. and Yamane, T. 1996. Monoglyceride formation form fat by immobilized lipase. Songklanakarin J. Sci. Technol. 18 : 363-370.
- Kazlauskas, R.J. and Bornsheuer, U.T. 1997. Biotransformations with lipase. In Biotechnology (eds. H.J. Rehm, G. Reed, A., Puhler, P.J.W. Stadler and D.R. Kelly) Vol. VIII : Biotransformation, pp.226. Weinheim : VCH Verlagagesellschaft mbH.
- Keeshoon, W., Sangbum, K., Kim, K.J., Woopark, H. and Moon, S.J. 2004. Optimization of lipase entrapment in Ca-alginate gel beads. Process Biochem. 40 : 2149-2157.
- Kenedy, R.J. and Cabral, J.M.S. 1987. Enzyme immobilization. In J.F.Kenedy (ed. J.F. Kenedy) Vol. VIIa : Enzyme Technology, pp. 349-402. Weinheim : VCH Verlagagesellschaft mbH.
- Kimura, Y., Yanaka, A., Sonomoto, K., Nihira, T. and Fukui, S. 1983. Application of immobilized lipase to hydrolysis of triacylglyceride. Eur. J. Appl. Microb. Biotechnol. 17 : 170-112.
- Kosuki, Y. and Tanaka, H. 1990. Continuous hydrolysis of oil by immobilized lipase in a countercurrent reactor. Biotechnol. Bioeng. 36 : 617-622.

- Kosuki, Y. and Tomizuka, N. 1995. Continuous lipolysis reactor with a loop connecting an immobilized lipase column and oil-water separator. *J. Am. Oil. Chem. Soc.* 72 : 1329-1332.
- Kwon, S.J., Han, J.J. and Rhee, J.S. 1995. Production an in situ separation of mono- or diacylglycerol catalyzed by lipase in n-hexane. *Enzyme Microb. Technol.* 17 : 700-704.
- Kwon, D.Y., Song, H.N. and Yeon, S.H. 1996. Synthesis of medium-chain glycerides by lipase in organic solvent. *J. Am. Oil Chem. Soc.* 73 : 1521-1525.
- Lee, S.Y. and Rhee, J.S. 1993. Production and partial purification of a lipase from *Pseudomonas putida* 3SK. *Enzyme Microb. Technol.* 15 : 617-623.
- Li, Y.Z. and Ward, O.P. 1993. Synthesis of monoglyceride containing omega-3 fatty acids by microbial lipase in organic solvent. *J. Am. Oil. Chem. Soc.* 70 : 745-748
- Macrae, A.R. 1983. Lipase-catalyzed interesterification of oil and fat. *J. Am. Oil. Chem. Soc.* 61 : 1067-1071.
- Malcata, F.X., Reyes, H.R., Garcia, H.S., Hill, C.G. and Amundson, C.H. 1992. Kinetics and mechanisms of reactions catalyzed by immobilized lipase. *Enzyme Microb. Technol.* 14 : 426-446.
- McNeill, G.P., Shimisu, S. and Yamane, T. 1990. Solid phase enzymatic glycerolysis of beef tallow resulting in a high yield monoglycerol. *J. Am. Oil. Chem. Soc.* 67 : 779-783.
- McNeill, G.P. and Yamane, T. 1991. Further improvements in the yield of monoacylglycerides during enzymatic glycerolysis of fat and oil. *J. Am. Oil. Chem. Soc.* 68 : 6-10.
- McNeill, G.P., Shimisu, S. and Yamane, T. 1991. High-yield enzymatic glycerolysis of fats and oil. *J. Am. Oil. Chem. Soc.* 68 : 1-5.
- McNeill, G.P., Ackman, R.G. and Moore, S.R. 1996. Lipase-catalyzed enrichment of long-chain polyunsaturated fatty acids. *J. Am. Oil. Chem. Soc.* 73 : 1403-1414.
- Millqvist, A., Adlercreutz, P. and Mattiasson, B. 1994. Lipase-catalyzed alcoholysis of triglycerides for the preparation of 2-monoglycerides. *Enzyme Microb. Technol.* 16 : 1042-1047.
- Mojovic, L., Marinkovic, S. S., Kukic, G. and Novakovic, G. V. 1993. *Rhizopus arrhizus* lipase catalyzed interesterification of the midfraction of palm oil to a cocoa butter equivalent fat. *Enzyme Microb. Technol.* 15 : 438-443.

- Ohta, Y., Yamane, T. and Shimisu, S. 1989. Inhibition and inactivation of lipase by fat peroxide in the course of batch and continuous glycerolyses of fat by lipase. *Agric. Biol. Chem.* 53 : 1885-1890.
- Okumura, S., Iwai, M. and Tsujisaka, Y. 1981. The effect of reverse action on triglyceride hydrolysis by lipase. *Agric. Biol. Chem.* 45 : 180-189.
- Patel, M. T., Nagarajan, R. and Kiara, A. 1995. Characteristic of lipase-catalyzed hydrolysis of triglyceride in aerosol-ot/iso-octane reverse micellar media. *Appl. Biochem. Biotechnol.* 22 : 1-14.
- Paquot, C. 1979. IUPAC. Standard Methods for the Analysis of Oils, Fats and Derivatives, 6th ed. Part I. Pergamon press, Paris.
- Perrin, D.D. and Dempsey, B. 1974. Buffer for pH and Metal Ion Control. London : Chapman and Hall.
- Peniche, C., Howland, I., Carrillo, O., Zaldi'var, C. and Arguelles-Monal, W. 2004. Formation and stability of shark liver oil loaded chitosan/calcium alginate capsules. *Food Hydrocolloids.* 18 : 865-871.
- Rosu, R., Uozaki, Y., Iwasaki, Y. and Yamane, T. 1997. Repeated use of immobilized lipase for monoacylglycerol production by solid-phase glycerolysis of olive oil. *J. Am. Oil. Chem. Soc.* 47 : 445-450.
- Schwimmer, S. 1981. Source Book of Food Enzymology. Westport Connecticut : The AVI Publishing Company, INC.
- Seema, S.B. and Steven, H.N. 2002. Immobilization of lipase using hydrophilic polymers in the form of hydrogel brads. *Biomaterials.* 23 : 3627-3636.
- Shahani, K.M. 1975. Lipase and esterase. In *Enzymes in Food Processing.* 2nd ed. (Reed, G., ed.). p. 181-217. Academic Press. New York.
- Sonntag, N.O.V. 1982. Glycerolysis of fats and methyl esters-status, review and critique. *J. Am. Oil. Chem. Soc.* 59(10) : 795A-802A.
- Stevenson, D.E., Stanley, R.A. and Furneaux, R.H. 1993. Glycerolysis of tallow with immobilized lipase. *Biotechnol. Lett.* 15: 1043-1048.
- Thude, S., Shukun, L., Said, M.B. and Borncheuer, U.T. 1997. Lipase-catalyzed synthesis of monoacylglyceride by glycerolysis of camphor tree seed oil. *J. CA Section.* 99 : 246-250.

- Tuter, M., Babah, B., Koes, O., Dural, S. and Aksoy, H.A. 1999. Sovent-free glycerolysis of palm and palm kernel oils catalyzed by a 1,3-specific lipase and fatty acid composition of glycerolysis product. *Biotechnol. Bioeng.* 42 : 821-828.
- Yamane, T. 1987. Enzyme technology for the lipid industry : An engineering overview. *J. Am. Oil. Chem. Soc.* 64 : 1657-1661.
- Yamane, T., Mohammad, M.H., Iyoh, S. and Shimizu, S. 1986. Glycerolysis of fat by lipase. *Jpn. Oil Chem. Soc.* 8 : 625-631.
- Yang, B. and Parkin, K.L. 1994. Monoacylglycerol production from butteroil by glycerolysis with a gel-entrapped microbial lipase in microaqueous media. *J. Food Sci.* 59 : 47-52.
- Yang, D. and Rhee, J.S. 1991. Stability of the lipase immobilized on DEAE-sephadex for continuous lipid hydrolysis in organic solvent. *Biotechnol. Lett.* 13 : 553-558.
- Yang, D. and Rhee, J.S. 1991. Continuous hydrolysis of olive oil by immobilized lipase in organic solvent. *Biotechnol. Bioeng.* 40 : 748-752.
- Yang, T., Rebsdorf, M., Engelrud, U. and Xu, X. 2005. Monoacylglycerol synthesis via enzymatic glycerolysis using a simple and efficient reaction system. *J. Food Lipids.* 12 : 299-312
- Zorica, K., Svetlana, B., Aleksandra, M., Bojana, O., Lliljana, M. and Branko, B. 2002. Alginate-immobilized lipase by electrostatic extrusion for the purpose of palm oil hydrolysis in lecithin/isooctane system. *Process Biochem.* 38 : 313-318.