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題名 ; Synthesis of Tri-Conjugated-Linoleoylglycerol by Using Powdered Lipase Reaction System.

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Lipase catalyzed trans-esterification is one of the excellent methods to obtain functional foods oils. Nevertheless, this technique has been put into practice only in limited areas. It is necessary to design the reaction system as simply as possible to develop it for versatile use such as hydrogenation, chemical esterification and fractionation. For the immobilization processing, other substances are required as a carrier, by which the specific activity of the enzyme is inevitably decreased. Thus, we investigated the trans-esterification reaction in consideration of the point that a compact reaction system can be designed by using powdered lipase. Optimal reaction temperature was higher for lipase powder with lower water content. The optimal reaction temperature of the lipase powder was 85 centigrade and its activity was 20 % of the activity of the optimal temperature, even at the higher temperature of 130 centigrade. The half-life of the lipase powder activity was determined to be 380 hour by repeated reaction at 80 centigrade. We applied of the reaction system to synthesis of ester not only trans-esterification, such as synthesis of Tri-conjugated-linoleoylglycerol(CLA-TAG). CLA-TGA could be synthesized smoothly by eliminating water from the reaction. The rate of synthesis of CLA-TAG was increased when the different lipases powder which have different characteristic were mixed and used for synthesis of CLA-TAG. The method developed by us has been put into practice in the industrial production of CLA-TAG.