Synopsis of Original Research Paper

Development of value-added liposomal cosmetics based on physiological activities of enzymatically synthesized trehalose lipids

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Synthesis of a trehalose lipid via lipase-catalysed condensation between trehalose and myristic acid in low-water organic media was investigated. A trehalose lipid (monomyristoyl trehalose) was obtained using immobilized lipase B from *Candida antarctica* (Novozym 435). The product yield was significantly affected by reaction conditions, such as the initial water concentration in organic solvents, the initial water and the amount of added molecular sieves. The product yield varied in the range 0–25%. The effects of the reaction conditions were discussed in relation to the quantitative distribution of water in the reaction system, *i.e.*, water adsorbed onto immobilized enzymes, water adsorbed onto molecular sieves, and free water dissolved in the organic solvent. We developed a comprehensive method for evaluating the effects of water on the product yield.