

Production of Cocoa Butter-like Fats by Interesterification of Hazelnut Oil

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Cocoa butter is an expensive and important raw material used in the food industry. It is responsible for smooth texture, contractibility, flavor release and gloss of products. In addition cocoa butter is the one continuous phase in chocolate, and for this reason, it is responsible for dispersion of other components. There is no other naturally occurring fat with the same physical properties as cocoa butter. However, numerous factors like uncertainty in supply, variability in quality, high price when compared to other fats and unsuitableness for use in hot climates have driven the research alternatives and carried out various studies about subject.

The main methods for cocoa butter-like fats production are fractionated crystallization and interesterification reactions. The enzymatic methods, in which lipases are used, have important advantages over the traditional methods of chemical interesterification and attract attention in recent years. As compared to chemical interesterification, the main advantage of using lipases is specificity; furthermore, lower consumption of energy, carrying out reaction with lower temperature, absence of isomerization by-products, closely similar product distribution with cocoa butter and better control of products are other advantages. For this purpose the 1,3-specific lipase from *Rhizomucor miehei* is used prevalently.

Turkey is the leading country in hazelnut production which is important for its fatty acid composition besides high nutritional value.

In this study, the use of hazelnut oil which is a specific product to Turkey is aimed for production of cocoa butter-like fats by interesterification reactions. The synthesized product is evaluated considering its fatty acid composition, triacylglycerol composition and melting properties.

Key Words: Cocoa butter-like fats, hazelnut oil, enzymatic interesterification, functional / structured lipids, Lipozyme ® RM IM