Enzymatic Interesterification of Palm oil and Fractions:  
A Calorimetric Study.

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Interesterification is an important modification technique for fats and oils resulting in the redistribution of the fatty acids among the glycerol backbone and thus changing the physicochemical properties of the modified fat. Palm oil, palm olein and soft palm mid fraction were analyzed by differential scanning calorimetry (DSC) before, during and after batch lab-scale enzymatic interesterification (TL IM, Novozymes). The DSC melting profiles of the three palm products drastically changed during the reaction due to the random redistribution of the fatty acids on the glycerol occurring upon interesterification. In view of those drastic changes, the applicability of DSC to monitor the course of the enzymatic interesterification (EIE) was investigated. While TAG (HPLC) composition remained constant after relative short reaction time, the DSC melting profiles were still modifying. From the DSC melting profiles, a medium melting peak was selected as a good indicator of the reaction course. Modifications within this specific endothermic peak were attributed to changes within the mono-unsaturated triacylglycerol fraction, and particularly to sn-2 acyl migration. The intensity of some growing sub-peaks was used to follow the EIE reaction course. It was therefore suggested that DSC can be used to monitor the enzymatic interesterification reaction of palm products.