Physico-chemical properties of various palm-based diaclyglcyerol oils in comparison with their corresponding palm-based oils

Abstract

Palm-based diacylglycerol (P-DAG) oils were produced through enzymatic glycerolysis of palm kernel oil (PKO), palm oil (PO), palm olein (POL), palm mid fraction (PMF) and palm stearin (PS). High purity DAG (83–90%, w/w) was obtained and compared to palm-based oils (P-oil) had significantly ($P < 0.05$) different fatty acid composition (FAC), iodine value (IV) and slip melting point (SMP). Solid fat content (SFC) profiles of P-DAG oils as compared to P-oils had less steep curves with lower SFC at low temperature range (5–10 °C) and the higher complete melting temperatures. Also, P-DAG oils in contrast with P-oils showed endothermic as well as exothermic peaks with higher transition temperatures and significantly ($P < 0.05$) higher crystallisation onsets, heats of fusion, and heats of crystallisation. Crystal forms for P-DAG oils were mostly in the β form.

Keyword: Palm-based diacylglycerol oils; Physico-chemical properties; Diacylglycerol composition