Physicochemical characteristics of soybean oil, palm kernel olein, and their binary blends.

ABSTRACT

Soybean oil (SBO), palm kernel olein (PKO) and their binary blends (containing 5–40% PKO) were studied for their physicochemical characteristics. Decreases in band absorbencies of the resultant Fourier transform infrared spectra were observed in regions attributable to vibrations of the functional groups of unsaturated fatty acids, mainly the =C–H cis stretching at 3009 cm−1and –C=C cis stretching at 1657 cm−1. The solid fat content was measurable in the blends containing 15–40% PKO at 5 and 10 °C, ranging within 4–20% and 2–13%, respectively. The differential scanning calorimetry melting curve for SBO exhibited more complex transition peaks, suggesting a inline image polymorphic transformation when compared with PKO with a simpler inline image. Blending of SBO with PKO reduced the complexity caused by the polymorphic transformation, featuring the endotherms that only related to the β′ fat crystals.

Keyword: Fourier transform infrared spectra; Melting curves; Oil blends; Palm kernel olein; Physicochemical characteristics; Solid fat content; Soybean oil.