

Effect of *Moringa oleifera* oil blending on fractional crystallization behavior of palm oil.

ABSTRACT

The objective of this study was to see the effect of *Moringa oleifera* oil blending on the fractional crystallization behavior of palm oil. Palm oil blended with *Moringa oleifera* oil at 20% (w/w) was subjected to crystallization using a dry process at 21 and 18°C and a solvent process at 15 and 10°C. After recording the quantitative recoveries of the liquid and solid fractions, their fatty acid and triacylglycerol compositions, and the thermal profiles were determined by using gas liquid chromatography, high performance liquid chromatography, and differential scanning calorimetry, respectively. Results showed that the yield recoveries of liquid fractions under solvent-assisted crystallization were higher than those obtained by dry-crystallization conditions. Almost all of the liquid fractions isolated had experienced a significant ($p < 0.05$) increase in oleic acid as well as triolein contents. Among the solid fractions, those isolated by dry-crystallization were found to be higher ($p < 0.05$) in oleic acid and triolein contents than the reference stearin sample. Although the thermal profiles of the solid and liquid fractions derived by different methods looked similar to those of the two reference samples, remarkable differences were noticed with regard to the onset of crystallization and the position of the thermal transitions.

Keyword: Dry fractionation; Fractional crystallization; *Moringa oleifera*; Palm oil fractions; Thermal properties; Solvent fractionation.