

Composition and thermal analysis of lard stearin and lard olein.

ABSTRACT

Lard being an edible fat could be used in different forms in food systems. In this study, composition and thermal analysis of lard stearin (LS) and lard olein (LO) were undertaken to determine some common parameters which would enable their detection in food. A sample of native lard was partitioned into LS and LO using acetone as solvent and the fractions were compared to the original sample with respect to basic physico-chemical parameters, fatty acid and triacylglycerol (TAG) composition, and thermal characteristics. Although LS and LO displayed wider variations in basic physico-chemical parameters, thermal properties and solidification behavior, they do possess some common characteristic features with regard to composition. In spite of the proportional differences in the major fatty acids, both LS and LO are found to possess extremely high amount of palmitic (C16:0) acid at the sn-2 positions of their TAG molecules. Similar to native lard, both LS and LO contained approximately equal proportions of TAG molecules namely, linoleoyl-palmitoyl-oleoyl glycerol (LPO) and dioleoyl-palmitoyl glycerol (OPO). Hence, the calculated LPO/OPO ratio for LS and LO are comparably similar to that of native lard.

Keyword: DSC; Food adulteration; Lard detection; Lard olein; Lard stearin; Thermal analysis.