

Seed fat from madhuca longifolia as raw material for halal alternative fats

Abstract

Fat extracted from pork is prohibited under halal and kosher food regulations. A study was carried out on *Madhuca longifolia* seed fat and oil to compare their solidification and melting characteristics to formulate halal alternative lipid substitutes. Initially, a direct comparison of pork fat and *Madhuca longifolia* seed fat was done with respect to fatty acid and triacylglycerol compositions using chromatographic techniques and thermal properties by differential scanning calorimetry (DSC) and pulse NMR spectroscopy. By subjecting these two fats to fractional crystallization under controlled temperature in acetone, their solid and liquid components were isolated separately. The thermal properties of the solid and liquid components from pork fat were also compared to those of lipid derivatives from *Madhuca longifolia* seed fat using DSC and NMR techniques. As the analytical data obtained from DSC and pulse NMR techniques showed that the thermal properties of these two fats and their components were compatible, *Madhuca longifolia* seed fat could be a useful raw material for formulation as halal alternative fats.