

Influence of Major Triglyceride Constituents of *Madhuca longifolia* seed fat and Engkabang fat on their Crystallization Behaviour: A Comparative Study

06 Nov.

NSM25

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Studies on the role of constituent triglycerides (TG) of plant fats on their crystallization behavior are important for many reasons. The purpose of this study was to evaluate the impact of major triglyceride constituents of seed fats of *Madhuca longifolia* and Engkabang on their crystallization behaviors. Fats were initially obtained from their respective seeds using soxhlet extractor. They were subjected to analysis by high performance liquid chromatography and differential scanning calorimetry to determine their constituent triglycerides and crystallization thermograms, respectively. Engkabang fat was found to possess overwhelming amount of monounsaturated triglyceride (96.8 %) molecules and lesser amount of both di-unsaturated (2.06 %) and trisaturated (0.61%) triglyceride types. In contrast, *Madhuca longifolia* fat was found to possess around 44% monounsaturated TG molecules, 12.85% triunsaturated triglyceride molecules and 43.15% diunsaturated triglyceride molecules. The abundance of monounsaturated triglyceride over other triglyceride could have caused Engkabangfat to display single narrow thermal peak in the DSC cooling curve. On the other hand, a balanced distribution of differing triglyceride subclasses in *Madhuca longifolia* fat could have resulted in high-melting and a low-melting and middle-melting thermal peaks in its cooling curve. This particular crystallization feature of *Madhuca longifolia* fat would be beneficial to recover different fat components during fractional crystallization.

Keywords: *Madhuca longifolia*, soxhlet extractor, cooling curve, Engkabang fat