

# **Analysis and Comparison of Cocoa Butter Polymorphic Forms by DSC, X-Ray Diffractometer, Raman Spectroscopy and PLM**

Glten ŐEKEROĐLU and Ahmet KAYA

University of Gaziantep, Engineering Faculty, Food Engineering Department,  
Gaziantep - TURKIYE

The aim of this study was to define the pure polymorphic forms of cocoa butter. Fat bloom is unwanted in chocolate products and it occurs mainly recrystallization and polymorphic transition of cocoa butter form V to form VI. Cocoa butter is polymorphic with six known forms identified with generally Roman numerals I to VI. These six crystalline forms had been identified using combination of experimental techniques. Cocoa butter was crystallized statically from melt to various temperatures in the range of -20°C to 22°C and stored to obtain crystal forms up to 7 days. During this period, forms of cocoa butter were monitored using Differential Scanning Calorimeter (DSC), X-Ray Diffractometer and Raman Spectroscopy. In addition, the microstructures of the forms were imaged by using Polarized Light Microscopy (PLM).