Thermal behavior of selected starches in presence of other food ingredients studied by Differential Scanning Calorimetry (DSC)review

ABSTRACT

This review article highlights the thermal behaviors of selected starches that were studied using differential scanning calorimetery (DSC) with data shown in various research publications. The starches of sago, potato, sweet potato, cassava, yam, and corn are included in this overview. Our examinations indicate that thermal properties are highly affected by the type of starch, its amylose/amylopectin content, and the presence of other food ingredients such as sugar, sodium chloride, water, milk, hydrocolloids, and meat. When the heating temperatures of the starches were increased, the DSC measurements also showed an increase in the temperatures of the gelatinization (onset [To], peak [Tp], and conclusion [Tc]). This may be attributed to the differences in the degree of crystallinity of the starch, which provides structural stability and makes the granule more resistant to gelatinization.

Keyword: Differential scanning calorimetry; Starches; Thermal properties