

Advances in differential scanning calorimetry for food authenticity testing

ABSTRACT

Differential scanning calorimetry (DSC) is a thermoanalytical technique that is commonly used for studying thermal effects. In food science, it is used to study physical behavior during storage and processing of fat and oils, carbohydrates, water or alcohol, proteins, and food packaging. Furthermore, it is well known as a simple, rapid, and environmentally friendly technique. It was reported that DSC has been successful in authenticating several food products such as fats and oils. This chapter therefore briefly reviews DSC applications in foods, with an emphasis on authenticity issues. The principles of this technique together with examples of current uses, limitations, and prospects are discussed. Continuing development should focus on the potential of this technique in combination with chemometric analysis.

Keyword: Authenticity; Chemometric; DSC; Fats; Food; Oils; Thermal effect