P 303

CHARACTERISTICS OF MULTIPLE (W/O/W) EMULSIONS MANUFACTURED WITH CASEINATE OR EGG WHITE POWDER

B. Öztürk*, M. Serdaroğlu, M. Urgu

Ege University, Engineering Faculty,
Food Engineering Dept, Izmir, Turkey

Multiple emulsion is described as “emulsion of an emulsion” where water-in-oil (W/O) and oil-in-water (O/W) morphologies exist together. In recent years, multiple emulsions draw ever-increasing interest in food industry due to their innovative usage area. Multiple emulsions (W/O/W or O/W/O) are stated to have a big potential as they provide the production of healthier and low-fat products, besides encapsulation of various aromas, bioactive compounds and sensitive food components. The preparation steps of emulsions are of great importance in terms of stability issues, as well as their characteristics and application opportunities. For this reason, in this study it is aimed to investigate some characteristics of W/O/W emulsions prepared with different emulsifying agents (caseinate or egg white powder). For that purpose, first of all the optimum concentrations of caseinate and egg white powder were determined as 10% and %3, respectively, depending on results of emulsion creaming and centrifugation stability. After that, W/O/W emulsion groups were prepared by using two-step emulsification procedure, in which oil phase was consist of olive oil and PGPR, and water phase was consist of emulsifying agent (caseinate or egg white powder) and water. For identifying the characteristics of W/O/W emulsions; pH, colour, viscosity, turbidity, stability, average particle size and SEM analysis were performed. pH and colour did not change significantly between the groups. Emulsion stability and viscosity parameters were higher in caseinate W/O/W emulsion groups compared with egg white W/O/W emulsion groups. The results showed that using 10% caseinate in external water phase of W/O/W multiple emulsions have the potential to provide stability and offer a possibility to evaluate W/O/W emulsions in formulation of low-fat food products.

Keywords: Emulsion, multiple emulsion, W/O/W emulsion, caseinate, egg white powder

* Corresponding author: burcu.ozturk@ege.edu.tr