

Effect of sodium caseinate concentration and sonication amplitude on the stability and physical characteristics of homogenized coconut milk

ABSTRACT

The ultrasonic homogenization of coconut milk with added sodium caseinate (SC) was carried out to reduce the fat globules size and stabilize the emulsion. The coconut milk was mixed with SC at different concentrations from 0.5% to 2% w/w. The sonication was conducted at different sonication amplitudes (60%, 80% and 100%). The primary and effective droplet size, viscosity, homogenization efficiency and free fat content of the homogenized emulsion were characterized. Ultrasonic homogenization significantly reduced the average particle size to lower than half of its original size and reached to sub-micron range size. Increasing the SC concentration positively reduced both the creaming index and free fat content without significant change in apparent viscosity. In this study, the changes in the physical characteristics of the emulsion were more affected by the SC concentration than the amplitude setting percentage. Nevertheless, both parameters were important in the formation of submicron-sized droplets.

Keyword: Sodium caseinate; Sonication amplitude; Homogenized coconut milk; Coconut milk