

Title The effect of chitosan on the properties of emulsions stabilized by whey proteins
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Citation Food Chemistry, Volume 102, Issue 4, 2007, Pages 1048-1054
Keywords Chitosan; Whey protein isolate; Emulsions; Creaming stability; Flocculation

Abstract

The influence of the cationic amino polysaccharide chitosan content (0–0.5%) on particle size distribution, creaming stability, apparent viscosity, and microstructure of oil-in-water emulsions (40% of rapeseed oil) containing whey protein isolate (WPI) (4%) at pH 3 was investigated. The emulsifying properties, apparent viscosity and phase separation behaviour of aqueous WPI/chitosan mixture at pH 3 were also studied. The interface tension data showed that WPI/chitosan mixture had a slightly higher emulsifying activity than had whey protein alone. An increase in chitosan content resulted in a decreased average particle size, higher viscosity and increased creaming stability of emulsions. The microstructure analysis indicated that increasing concentration of chitosan resulted in the formation of a flocculated droplet network. This behaviour of acidic model emulsions containing WPI and chitosan was explained by a flocculation phenomenon.