

Physicochemical properties and in vitro bioaccessibility of lutein loaded emulsions stabilized by corn fiber gums

ABSTRACT

Lutein is a natural colorant and functional ingredient with many health-promoting bioactivities. However, its use in functional foods is limited due to its low water-solubility and chemical instability. The objectives of this study were to investigate the physicochemical properties and in vitro bioaccessibilities of lutein loaded emulsions stabilized by corn fiber gums (CFG1 and CFG2). The physicochemical properties and stabilities of the emulsions were evaluated by droplet size and distribution, ζ -potential, viscosity, visual observation of phase separation, and lutein retention during storage. The lutein bioaccessibilities of the emulsions were measured after digestion in a simulated gastrointestinal tract (SGT). The results showed that CFG2 had better emulsifying capacity and stability than CFG1. Compared to lutein dispersed in corn oil, the chemical stability and in vitro bioaccessibility of lutein in the emulsions were significantly increased through emulsification. These results suggest that corn fiber gum is a promising natural emulsifier, which has potential to fabricate emulsions for delivering lutein or other lipophilic bioactive compounds in functional foods.