

Effect of polyoxyethylene sorbitan esters and sodium caseinate on physicochemical properties of palm-based functional lipid nanodispersions.

ABSTRACT

The main objective of the present study was to investigate the effect of polyoxyethylene sorbitan esters and sodium caseinate on physicochemical properties of palm-based functional lipid nanodispersions prepared by the emulsification-evaporation technique. The results indicated that the average droplet size increased significantly ($P < 0.05$) by increasing the chain length of fatty acids and also by increasing the hydrophile-lipophile balance value. Among the prepared nanodispersions, the nanoemulsion containing Polysorbate 20 showed the smallest average droplet size (202 nm) and narrowest size distribution for tocopherol-tocotrienol nanodispersions, while sodium caseinate-stabilized nanodispersions containing carotenoids had the largest average droplet size (386 nm), thus indicating a greater emulsifying role for Polysorbate 20 compared with sodium caseinate.

Keyword: Polyoxyethylene sorbitan esters (Tween); Sodium caseinate; Emulsion properties; Functional lipid nanodispersions.