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Physical and oxidative stability of high fat fish oil-in-water emulsions stabilized with sodium caseinate and phosphatidylcholine as emulsifiers

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Abstract

The physical and oxidative stability of high-fat omega-3 delivery systems such as fish oil-in-water emulsions stabilized with combinations of sodium caseinate (CAS) and phosphatidylcholine (PC) was optimized. The influence of fish oil content (50, 60 and 70%, w/w), amount of total emulsifier CAS+PC (1.4, 2.1 and 2.8%, w/w) and ratio between CAS and PC (0.4, 1.2 and 2) on physical and oxidative parameters was investigated. Creaming and droplet size significantly decreased when the amount of fish oil, total emulsifier and ratio of CAS to PC were increased. Viscosity decreased significantly with decreasing fish oil content, whereas the ratio of CAS to PC did not have a significant influence. Decreasing the ratio of CAS to PC led to emulsions with a significantly lower concentration of 1-penten-3-ol,

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