

Homogenization Pressure and Temperature Affect Protein Partitioning and Oxidative Stability of Emulsions - DTU Orbit (09/11/2017)

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The oxidative stability of 10 % fish oil-in-water emulsions was investigated for emulsions prepared under different homogenization conditions. Homogenization was conducted at two different pressures (5 or 22.5 MPa), and at two different temperatures (22 and 72 °C). Milk proteins were used as the emulsifier. Hence, emulsions were prepared with either a combination of α -lactalbumin and β -lactoglobulin or with a combination of sodium caseinate and β -lactoglobulin. Results showed that an increase in pressure increased the oxidative stability of emulsions with caseinate and β -lactoglobulin, whereas it decreased the oxidative stability of emulsions with α -lactalbumin and β -lactoglobulin. For both types of emulsions the partitioning of proteins between the interface and the aqueous phase appeared to be important for the oxidative stability. The effect of pre-heating the aqueous phase with the milk proteins prior to homogenization did not have any clear effect on lipid oxidation in either of the two types of emulsions.

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