Lipid oxidation and protein alterations in protein-stabilised oil-in-water emulsions

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Many foods can be described as oil-in-water emulsions. The lipid phase herein is subject to oxidation which contribute to a decrease of products odour and flavour. It also leads to protein alterations. Lipid oxidation and protein alterations were evaluated during storage of oil-in-water emulsions stabilized by bovine serum albumin in sealed vials. The oil phase was sunflower oil stripped from tocopherol. The results show (i) the high pro-oxidant effect of emulsification, (ii) the major importance of the total amount of available oxygen on formation of primary products of lipid oxidation (iii) the continuation, even when oxygen concentration becomes very low, of formation of secondary products of oxidation : volatile compound, oxidized lipid/amino acid reaction products (OLAARP) and of protein alterations evaluated from fluorescence measurements, (iv) the influence of the interface area on the rates of formation of primary products, OLAARP and protein modifications.