Challenges when developing omega-3 enriched foods

Due to the polyunsaturated nature of omega-3 fatty acids, lipid oxidation is a major challenge when developing omega-3 enriched foods. In multiphase food systems, several factors can affect lipid oxidation and efficacy of antioxidants, added to prevent lipid oxidation. This review discusses the influence of important factors such as oil quality, delivery systems for omega-3 fatty acids, processing conditions, composition of the food matrix on lipid oxidation in different omega-3 enriched foods (milk, yoghurt, mayonnaise and mayonnaise-based salads, dressing, energy bar and fish paté). Moreover, the effect of different antioxidants (tocopherol, EDTA, lactoferrin, caffeic acid, ascorbic acid, ascorbyl palmitate, propyl gallate, gallic acid, as well as lipophilized antioxidants) is compared in different food systems.