

Oxidative Stability in a Variety of Omega-3 PUFA Enriched Products

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Incorporation of marine omega-3 polyunsaturated fatty acids into foods has received increasing attention since the proposed beneficial health effects of these fatty acids have been supported by an increasing body of evidence. However, incorporation of the polyunsaturated omega-3 oils requires special attention due to their high susceptibility to lipid oxidation, which results in formation of undesirable fishy off-flavours. Since many different factors can affect the initiation and rate of oxidation of these oils, the oxidative stability of omega-3 enriched foods is highly dependent on the type and composition of food product to which the omega-3 oil is added.

The aim of the present work was to compare the effect of enrichment of very different products with omega-3 oil on the oxidative stability. It was investigated whether ingredients added to products, packaging method or method for addition of oil influenced the oxidative stability of the products. The results showed that fish oil enriched drinking yoghurt was very oxidatively stable, whereas fish pâté and fitness bars were more unstable than the drinking yoghurt. The results also showed that special precautions such as antioxidant addition, use of emulsions or encapsulated fish oil as omega-3 delivery systems or modified atmosphere packaging may reduce oxidation in these two products.