

Shelf-life of n-3 PUFA enriched frankfurters formulated with a konjac-based oil bulking agent

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Abstract

Frankfurters with improved-fat content were manufactured following two strategies: a) reduction of fat content by replacing pork backfat with konjac gel (KG); and b) reduction of fat/improvement of fatty acid profiles through partial substitution of pork backfat by an oil combination (olive, linseed and fish oils) stabilized in a -konjac matrix (oil bulking agent) (KG), in an oil-in-water emulsion (OWE), or a combination of both of these (KG and OWE).

Their shelf-life characteristics were studied on the basis of nitrite, microbiological, biogenic amine profile and lipid oxidation analyses during chilling storage. Nitrite levels decreased over storage in all samples and were highest ($P < 0.05$) in the sample with OWE. No clear relationship was observed between microbiota and reformulation. High initial histamine levels were observed in frankfurters containing OWE and/or KG. Over chilling storage, histamine and tyramine increased the most, with the highest levels occurring in the samples containing the oil combination. Initial levels of lipid oxidation were lower in the control sample. The samples containing the oil combination presented similar lipid oxidation patterns over storage, with higher levels in F/OWE. No reformulation-dependent factor that might limit shelf-life was detected during storage.