EVALUATION OF FATTY ACID COMPOSITION OF NILE TILAPIA (Oreochromis niloticus) CROQUETTES SUPPLEMENTED WITH FLAXSEED FLOUR SUBMITTED TO FRYING

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The heat applied to food during its preparation can change its composition by promoting the oxidation of fatty acids, especially polyunsaturated fats, such as alpha-linolenic acid. The objective of this study was to evaluate the fatty acid composition of two formulations (control and enriched with flaxseed flour) of tilapia croquette, raw and fried. Croquettes with a weight of 20 grams were manually shaped, breaded in egg and breadcrumbs and fried in soybean oil (190°C/3minutes). The fatty acid composition of raw and fried samples of both formulations was determined by gas chromatography. Comparison of the fatty acid composition was performed by analyzing components followed by a graphic representation on a biplot. Two principal components were sufficient to represent 99.32% of the variance. Seven AG were quantified being the major components myristic, palmitic, palmitoleic, stearic, oleic, linoleic and alpha-linolenic acids. Omega-6/omega-3 ratio in croquettes not enriched increased from 9.78 (raw) to 10.07 (fried). However, in the croquette supplemented with flaxseed flour, this index increased from 1.22 (raw) to 1.57 (fried), values considered nutritionally adequate. The ratio AG polyunsaturated/saturated in control ranged from 3.39 (raw) to 2.00 (fried) and 4.01 (raw) to 4.06 (fried) in enriched formulation, which seems healthier. The content of alpha-linolenic acid in the control product has decreased 20.03% after frying, while in enriched formulation this decrease was only 13.33%. The data obtained suggest that the incorporation of flaxseed flour, in addition to increase the content of omega-3, also inhibits changes in the fatty acid profile of the product during frying.