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Quality of fish oil supplements: Omega 3 fatty acid content and oxidation levels

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Fish oil supplements are sources of eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids, which are important to treat hypertriglyceridemia. The purpose of this study was to examine the content of EPA and DHA, total oxidation value (TOTOX), peroxide value (PV) and anisidine value (AV) of fish oil supplements marketed in Brazil. Ten products were randomly obtained from local drug-stores. Fatty acid contents were determined by gas chromatography using internal (C23:0) and external methyl ester standards. For GC-FID analysis, samples were prepared by alkali-catalyzed methylation with BF₃. PV was determined according to A.O.C.S Cd 8-53 method and AV according to A.O.C.S Cd 18-90 method in order to calculate TOTOX. The Global Organization for EPA and DHA (GOED) recommended levels for PV, AV and TOTOX of <5meq O₂/kg oil, <20 and <26, respectively, were used as oxidation parameters of the products. The adequacy of EPA and DHA ranged from 78.5 to 122.0%, compared to the label information. Seventy percent of the products contained EPA and DHA in the range of 20% variation from the label. None of the products exceeded the recommended international levels for AV, but 20% exceeded PV and TOTOX recommended levels. Most oxidized product reached 14.9 meqO₂/kg oil of PV and 44 of TOTOX. Despite the good adequacy of EPA and DHA levels and oxidation levels of the majority of the samples, the exceeding oxidation markers deserves concern due to their potential side effects to the proclaimed health benefits of these supplements.

Biography

Heloisa Rodrigues de Gouvêa is a student in the Graduate Program (MSc) in Human Nutrition at University of Brasília, Brazil. She is a Nutritionist at the Regional Hospital of Santa Maria – DF and at Gastrocirurgia de Brasília. She has published four papers in reputed journals and two chapters of book.

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