Comparison of wet-chemical methods for determination of lipid hydroperoxides

Five methods for determination of lipid hydroperoxides were evaluated, including two iodometric procedures involving a titration and a spectrophotometric micro method, and three other spectrophotometric methods namely the ferro, International Dairy Federation (IDF) and FOX2 (ferrous oxidation in xylenol orange). Peroxide values determined in a range of food products by these five methods gave different results. The ferro method required large amounts of solvent (50 mL/sample); the FOX2 method had a low range (0.005-0.04 mumol hydroperoxide); the end point detection of the titration method was subjective and required a large amount of sample (1 g); and the micro method was sensitive to interruptions during execution. Therefore, only the modified IDF method was chosen for further testing and validation. Stability tests of the standard curve showed a variation coefficient of 4% and within runs the highest variation was 5.9% (for blank) and a maximum of 9.6% between runs variation for the lowest concentration. Among the antioxidants tested, only ethylenediaminetetraacetic acid (EDTA) affected the peroxide determinations.

General information
Publication status: Published
Organisations: Section for Aquatic Lipids and Oxidation, National Institute of Aquatic Resources, Department of Systems Biology
Contributors: Nielsen, N. S., Timm Heinrich, M., Jacobsen, C.
Pages: 35-50
Publication date: 2003
Peer-reviewed: Yes

Publication information
Journal: Journal of Food Lipids
Volume: 10
Issue number: 1
ISSN (Print): 1065-7258
Ratings:
Scopus rating (2003): SJR 0.239 SNIP 0.27
Web of Science (2003): Indexed yes
Original language: English
Source: orbit
Source ID: 226927
Research output: Contribution to journal › Journal article – Annual report year: 2003 › Research › peer-review