Ropota Mariana et al., J Chromatogr Sep Tech 2016, 7:5(Suppl)
http://dx.doi.org/10.4172/2157-7064.C1.017

Use of gas chromatography to determine the cholesterol level in samples of meat and meat products

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Presently, consumers are increasingly attentive to the cholesterol concentration in animal foods. Hence, we used gas chromatography to determine the cholesterol level in samples of broiler meat (breast and leg) and in various chicken products (chicken frankfurters and chicken roll) and in pig meat (muscle, leg) and pig meat products (fillet). The method we used is in agreement with AOAC International 2002-AOAC 994.10 standard. The samples were processed chemically by saponification with 5% KOH in methanol, pH=2, extraction in petrol ether, concentration and dissolution in chloroform, and were thereafter analysed by gas chromatography. We used a Perkin Elmer-Clarus 500 with flame ionization detector and separation capillary HP-5, with hydrogen as carrier gas and air as burning gas. The method was validated "in house", and used as certified reference a standard chloroform solution, 10 mg/mL, SUPELCO, NIST traceable. We determined the following parameters: accuracy, fidelity, repeatability, reproducibility, sensitivity, detection limit, quantification limit and recovery, according to SR EN ISO/CEI 17025:2005, all values being within the admitted range. The following cholesterol concentrations were thus determined in chicken meat and meat products: 150.96±1.45 g/100g breast meat; 164.63±0.72 g/100g leg meat; 71.77±1.35 g/100g frankfurters and 185.44±0.34 g/100g chicken roll; and in pig meat and meat products: 151.31±4.72 g/100g muscle; 152.65±2.59 g/100g leg; 87.04±3.74 g/100g fillet.

Biography

Ropota Mariana finished her PhD in 2000 within the Faculty of Analytical Chemistry of the Bucharest University. She is coordinating the compartment of gas chromatographic analyses within the Laboratory of Chemistry and Nutrition Physiology of the National research-Development Institute for Animal Biology and Nutrition-IBNA-Balotesti. She published more than 20 papers in national and international scientific journals, rated by ISI or by other databases.

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