

## STUDY OF STABLE ISOTOPE COMPOSITION OF CHOSEN FOODSTUFFS FROM THE POLISH MARKET

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The isotope ratio mass spectrometry ( IRMS ) methods play a very important role in food authenticity and origin control. Stable isotope analysis for the control of declared origin is already routinely applied in EU for wine, fruit juice and honey. For other foodstuffs, published studies already exist and demonstrate the potential for verification of origin and authenticity for milk and milk products, olive oil, asparagus and meat ( pork, beef, lamb ). In the present work are demonstrated the carbon and nitrogen isotope ratio in samples of food products bought in the retail trade in Warsaw. Research were carried out on meat ( pork, chicken ), hens eggs and honey. These products were originated from the conventional farming and from ecological farms. The meat and eggs samples were dried by lyophilisation and the fat was removed in a Soxhlet apparatus using petroleum ether. The remaining fat-free material (protein) was homogenised. Proteins from honey were isolated according to the AOAC Official Method 998.12 and own procedure. C and N isotope analysis ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) were performed on DELTA plus (Finnigan, Germany) mass spectrometer using elemental analyser Flash 1112 series EA. The values of the isotopic ratios are expressed in ‰ and correspond to an international standard ( V-PDB for  $\delta^{13}\text{C}$ , and Air for  $\delta^{15}\text{N}$  ) according to the following general formula:  $\delta\text{‰} = \frac{R_{\text{sample}} - R_{\text{standard}}}{R_{\text{standard}}} \times 1000$  where R represents the ratio between the less abundant and more abundant isotopes, in particular  $^{13}\text{C}/^{12}\text{C}$  and  $^{15}\text{N}/^{14}\text{N}$ . The results received in our laboratory were compared with results presented in the literature for suchlike products. The results show that the stable isotope ratios of bio-elements in tested products can be applied to verify the origin of products.