

THE CHEMICAL COMPOSITION AND QUALITY OF TRADITIONALLY SMOKED POLISH REGIONAL PRODUCTS, PRODUCED FROM OF RAW MATERIAL OBTAINED FROM NATIVE ANIMAL BREED

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Abstract

The homeland (native) domestic animal breeds are accompanying humans more than 6 thousand years. They supplied food, served as a work force and were part of the landscape. In 2016, in Poland, 83 races, varieties and animal lines were registered and preserved with special in situ programs. The raw materials originating from native animal breeds are applied for production of the best quality traditional, local products. These products are produced and preserved with traditional methods. Food smoking is one of the oldest food preservation techniques. Since the discovery of fire, this method has been used to preserve meat, fish, cheese and some fruits. In this research, traditionally smoked meat products, fish and cheeses were analyzed.

There were analyzed 100 traditionally smoked meat products, fish and cheeses obtained from meat or milk of native breeds bred in a traditional way. The products were purchased from different regions of Poland where the raw materials were obtained from homeland breeds. The meat products, fish and cheeses were minced and average samples obtained were subjected to following chemical analyses: water content according to the standard PN-ISO 1442:2000, fat content according to the standard PN-ISO 1444:2000, protein content by Kjeldahl method (PN-75/A-04018), total ash content according to the standard PN-ISO 936:2000, total carbohydrates content was calculated assuming that the all total solids and water stand for 100%, NaCl content by the Mohr's method (Polish standard PN ISO 1841-1:2002), polycyclic aromatic hydrocarbons (PAHs) (benzo(a)pyrene and sum of benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluorantene and chrysene) according to the HRGC-HRMS method (CZ_SOP_D06_06_180 - except chap. 11.3.3.1 - 11.3.3.7, 11.3.3.9 I, 11.3.4 (US EPA 429, ISO 11338); PAH16: Determination of polyaromatic hydrocarbons by isotope dilution method using HRGC-HRMS). Also, products were subjected to consumer sensory analysis. The panel consisting of 10 persons was using the product assessment sheets according to procedure PN-ISO 6658: 1998. There were assessed 9 quality characteristics with 5 point hedonic scale.

The differences in protein and fat content in pork, beef, sheep, horse, and goose products are caused by breed differences in meat composition. All these products contained amounts of salt within the limits required by the standards. From 26 analysed smoked meat samples, lamb ham did not meet any of the applicable limits (for PAHs levels) set by law regulations while one pork ham and beef jerky did not meet the limits set by EU regulation no. 835/2011, but met the limits set by EU regulation no. 1327/2014. Among 35 sausages 5 did not meet any applicable limits. The highest PAHs content and percentage share of exceeding the PAHs critical limits were observed for 'kabanos' type sausage. None of the studied smoked fish products exceeded the PAHs critical limits. Studied cheeses samples had trace levels of benzo[a]pyrene, with the exception of small cheeses (rennet type; 4.5 µg/kg), and hot smoked goat whey cheese (17.0 µg/kg). Currently there are no law regulations for critical limits for PAHs in smoked cheeses.

Traditionally smoked products of animal origin were characterized by very good quality parameters and high marks awarded by consumers. The traditionally smoked meat products, fish and cheese are a good promise for the future. Promotion of traditional products obtained from above assessed obtained with raw materials of native animal breeds origin will favor the development of animal breeding and their stocks rising.

Key words: *Native animal breeds, Meat products, Fishes, Cheese, Traditionally smoked, Quality.*