Consumer trends and food waste reduction

Meat Content and Its Definition

Tomáš Vlčko, Jozef Golian

Department of Food Hygiene and Safety, Faculty of Biotechnology and Food Sciences, Slovak University of Agriculture in Nitra, Nitra, Slovakia

Introduction: Consumer demand for quality products is increasing. One of the EU's priorities is consumer protection. The proportion of meat in a meat product is the main attribute of quality. The definition of meat is not uniform, in the broadest sense it is all the edible parts of the animal, in the narrower case it is skeletal muscle with immediately adjacent fat and connective tissue. Meat is the subject of frequent adulteration, it is mainly a substitute for a more expensive species for cheaper, or substitutes. Ultimately, it is always a matter of misleading the consumer with false information.

Materials and methods: The work is of an exploratory nature. We used a structured online questionnaire with questions focused on the consumption of meat and meat products, their labeling and the percentage of meat. We contacted 339 respondents. We processed the results using Microsoft Excel. We analyzed the legislative documents of the EU, selected Member States and our national legislation on the definition of meat.

Results: 96% of respondents consume meat, 46% consume meat 2-4 times a week and 30.4% daily. 79.9% of respondents buy products with the highest possible proportion of meat. 70.2% of respondents are willing to pay extra for such a product. 85.2% of respondents take the percentage of meat as a percentage of muscle. If this is not the case and the producer includes other animal tissue within the meat content, then 32.2% of respondents feel cheated. 55.8% do not trust that the product contains so much meat. Meat is most comprehensively defined in Regulation (EC) No 853/2004 as: "edible parts of animals referred to in points 1.2 to 1.8, including blood". This definition must be taken from a hygiene point of view. Regulation (EU) No 1169/2011 refers to the above Regulation, but defines meat as skeletal muscle in Annex VII and provides a certain maximum fat and connective tissue content for ingredients designated as meat. If the maximum values are exceeded, the label must be changed. The Regulation ensures a high level of consumer protection in relation to food information, taking into account differences in consumer perceptions. In Germany, the issue is similarly addressed in the "Deutsche Lebensmittelbuch" (German Food Book), which is a set of guidelines describing the production, composition and characteristics of food. In the Czech Republic Decree of the Ministry of Agriculture no. 69/2016 Coll., Defines meat as: "edible parts of animals for slaughter, used for human consumption". The definition does not correspond to what the consumer imagines under the term meat and therefore the Czech Republic has adopted a specific definition of meat as: "skeletal muscle with naturally contained fat and connective tissue", used exclusively for labeling in meat products. In the Slovak Republic Decree of the Ministry of Agriculture and Rural Development of the Slovak Republic no. 423/2012 Coll. about meat of animals for slaughter and Decree no. 83/2016 Coll. about meat products emphasizes in several parts the meat as skeletal muscle.

Conclusions: The decisive factor in choosing a meat product is the meat content, consumers are willing to pay extra for such a product. The consumer perceives meat as skeletal muscle. The analysis of the legislative documents clearly shows that It is necessary to distinguish between the definition of meat from the point of view of hygiene and the definition of meat as a component of a product or processing technology.

Acknowledgements and Financial support statement: AcknowledgemeThis work was supported by the Agency for the Support of Research and Development on the basis of Contract no. APVV-17-0508.

This work was supported by the project VEGA 1/0239/21.nts and Financial support statement

Literature:

ABBAS, O. et al. 2018. Analytical methods used for authentication of food of animal origin. In Food Chemistry, vol. 246, pp. 6-17. ISSN: 0308-8146. DOI: 10.1016/j.foodchem.2017.11.007

AKHATOVA, D. et al. 2018. Aktuální metody používané pro odhalení falšování masa a masných výrobků. In Chemické listy, vol. 112, no. 4, pp. 207-2014. ISSN: 1213-7103.

AKHREMKO, A. et al. 2020. Adaptation of two-dimensional electrophoresis for muscle tissue analysis. In Potravinarstvo Slovak Journal of Food sciences, vol. 14, pp. 595-601. ISSN: 1337-0960. DOI: 10.5219/1380

BALLIN, N. 2010. Authentication of meat and meat products. In Meat Science, vol. 86, no. 3, pp. 577-587. ISSN: 0309-1740. DOI: 10.1016/j.meatsci.2010.06.001

BORRÁS, E. et al. 2015. Data fusion methodologies for food and beverage authentication and quality assessment. In Analytica Chimica Acta, vol. 891, pp. 1-14. ISSN: 0003-2670. DOI: 10.1016/j.aca.2015.04.042

Decree of the Ministry of Agriculture and Rural Development of the Slovak Republic no. 83/2016 Coll. on meat products

Decree of MPaRV SR no. 423/2012 Coll. on meat of animals for slaughter $\,$

Decree of the Ministry of Agriculture No. 69/2016 Coll.

DRAPÁKOVÁ, D - GEIST, R. 2019. Spotreba mäsa na Slovensku stúpa. In EURACTIV. ISSN: 1337-0235.

FAŠIANGOVÁ, K. 2011. Vplyv prísad a iných náhrad na hodnotu mäsových bielkovín a kvalitu mäsových výrobkov : dizertačná práca. Košice : Univerzita veterinárskeho lekárstva a farmácie. 160 p.

FRONT, F. - GUERRERO, L. 2014. Consumer preference, behavior and perception about meat and meat products. In Meat Science, vol. 98, pp. 361-371. ISSN: 0309-1740. DOI: 10.1016/j.meatsci.2014.06.025

Consumer trends and food waste reduction

GEORGIOU, C. - DANEZIS, G. 2017. Food Authentication. West Sussex : John Wiley & Sons Ltd. 568 s. ISBN: 978-1-118-81025-5.

LAUTENSCHLAEGER, R. - UPMANN, M. 2017. How meat is defined in European union and in Germany. In Animal Frontiers, vol. 7, no. 4, pp. 57-59. ISSN: 2160-6064. DOI: 10.2527/af.2017.0446

REGULATION (EC) No 853/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2004 laying down specific hygiene rules for food of animal origin.

Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers.

RITCHIE, H. - ROSER, M. 2017. Meat and Dairy Production. In Our World in Data.

RÓŻYCKI M. et al. 2018. Isoelectric Focusing of Proteins in The pH Gradient As a Tool for Identification of Species Origin of Raw Meat. In Journal of Veterinary Research, vol. 62, no. 2, p. 151-159. ISSN: 2450-8608. DOI: 10.2478/jvetres-2018-0024 SPPK. 2019. Spotreba mäsa na Slovensku.

SPINK, J. et al. 2016. Introducing the Food Fraud Initial Screening model. In Food Control, vol. 69, pp. 306-314. ISSN: 0956-7135. DOI: 10.1016/j.foodcont.2016.03.016

ŠVPS. 2010. Ochrana spotrebiteľa v Európskej únii: Desať hlavných zásad.

ZIA, Q. et al. 2020. Current analytical methods for porcine identificacion in meat and meat products. In Food Chemistry. vol. 324. ISSN: 0308-8146. DOI: 10.1016/j.foodchem.2020.126664