



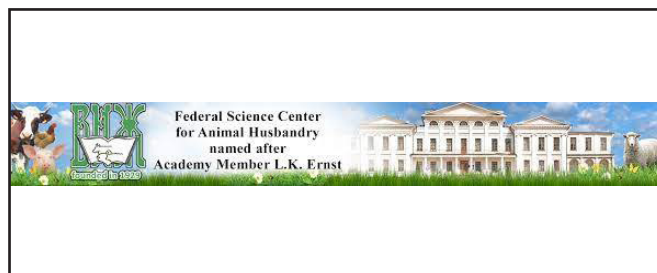
Evaluation of the quality of pork meat by the method of near infrared spectroscopy

Sergei Yu. Zaitsev

L.K. Ernst Federal Science Center for Animal Husbandry, 142132, Dubrovitsy 60, Russia

Abstract:

Consumer demand the high quality of meat production that is especially important in the case of pork meat [1]. This requirement has increased interest in various analysis methods such as a near infrared (NIR) spectroscopy due to its ability to quickly predict meat quality or identify meat products. This overview describes the principles of NIR spectroscopy, preprocessing techniques and multivariate analyzes used for quantitative and qualitative purposes of the pork meat. The feasibility of assessing protein, fat and moisture content of meat samples using NIR spectroscopy has been considered earlier [2,3] For example, Liao et al. [4] found great variability in the results depending on the spectra preprocessing method by using a conveyor spectrometer to scan (350-1100 nm) intact sections of *M. longissimus dorsi*. These errors are caused by changes in sample thickness, etc. However, despite the mathematical processing of the spectra, visible-near-infrared (VIS-NIR) spectroscopy was only suitable for rough screening purposes for moisture content and is not satisfactory for predicting protein and intramuscular fat content [5]. These results may have been due to the small range of protein values and the lack of uniformity in intact meat [4]. The NIR spectral data can be improved by measuring at wavelengths above 1100 nm; increasing the number of scans for each sample; using more surface area for each scan etc. [3-5]. These results are consistent with Prieto [6] and Balage [7] who reported low predictability of NIR spectroscopy for intramuscular fat content in beef and pork, when spectra were collected on intact muscle. Moreover, Prieto [8] homogenized beef meat samples. Prevolnik [9] used NIR spectroscopy (400-2500 nm) on homogenized raw meat and meat products (including several pork muscles) and demonstrated its ability to predict moisture, protein and intramuscular fat content over a diverse set of samples. Thus, the results of previous studies show that



Biography:

Sergey Yu. Zaitsev graduated from the Moscow State University in 1980; Ph.D. in 1986. In 1995 and 2007 S.Yu. Zaitsev received Doctor of Science degrees in Chemistry and Biology; a full professorship - in 2005. 1980-1999 he worked at different research positions (from junior to senior scientist) in Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry (Russian Academy of Sciences). 1999-2019 he worked as head of the Chemistry Department in Moscow State Academy of Veterinary Medicine and Biotechnology named after K.I. Scryabin (Moscow SAVMB). Since 2019 he is a Leading Researcher in L.K. Ernst Federal Science Center for Animal Husbandry. Prof. Zaitsev has authored over 500 scientific and teaching publications, including 15 monographs and handbooks; over 250 articles; 11 patents. Prof. Zaitsev supervised 21 Ph.D-students, about 100 Magister and Bachelor students. In 1991-1993 Prof. Zaitsev worked in some universities and research institutes in the United States and Germany. Prof. Zaitsev is now a member of the Board of Experts in Chemistry, Biology and Agricultural Sciences in various Russian Science Foundations and the Russian Ministry of Science and Education.

Publication of speakers:

1. The Interaction of Maleic Anhydride, N-Vinylpyrrolidone, and Their Mixture with 2,2-Diphenyl-1-picrylhydrazyl
2. Nanohybrid Structures Based on Plasmonic or Fluorescent Nanoparticles and Retinal-Containing Proteins

Veterinary Medicine and Animal Sciences, July 09-10, London, UK

Citation: Prof. Sergei Yu. Zaitsev, Evaluation of the quality of pork meat by the method of near infrared spectroscopy, Veterinary Medicine 2020, July 09-10, 2020 London, UK