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Editorial

Special Issue "New Frontiers in Meat Science and Technology"

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To meet the growing demands of consumers, in the field of meat science, the search for methods to increase the nutritional value and provide functional features to meat products has recently rapidly expanded. In recent years, many researchers have focused on bioactive compounds, which highlights their health-promoting properties. The functional value of meat can also be improved during processing via the modification of fatty acid composition, the addition of probiotic starter cultures, and the reduction in the level of added nitrates. However, many unanswered questions remain, especially in the context of novel processing methods and unconventional sources of meat.

This Special Issue aims to present recent developments in the field of meat science and technology.

A total of seventeen papers (sixteen research papers and one review paper) which cover various new trends in meat science and technology are presented in this Special Issue.

Mazur et al. [1] presented the addition of freeze-dried guelder rose fruit powder as an interesting option to improve the microbiological quality of homogenized meat products. Karwowska et al. [2] reported that a reduction in nitrite to the level of 50 mg kg^{-1} allows to one obtain fermented loins with physicochemical characteristics similar to the characteristics of products produced with the traditional level of nitrite (150 mg kg^{-1}), especially in terms of their physicochemical properties and lipid oxidation. Moreover, a reduction in the amount of nitrate used results in almost two-fold lower levels of nitrate residues. Mashau et al. [3] reported that the addition of *Moringa oleifera* leaf powder as a natural preservative to ground beef improves its nutritional value, cooking properties and shelf stability. Łaszkiewicz et al. [4] presented the use of the *Lactiplantibacillus plantarum* SCH1 strain for the biopreservation of cooked sausages produced from mechanically separated poultry meat, cured with a lower sodium nitrite dose (50 mg kg^{-1}). Karwowska et al. [5] compared the fatty acid profile and volatile compounds of fallow deer and beef fermented sausages without nitrite produced with the addition of acid whey. The elimination of nitrite did not significantly affect the level of volatile compounds in fermented sausages. However, the effect of the addition of freeze-dried acid whey powder on the level of some volatile compounds in uncured sausages was observed; in particular, an effect was observed on those derived from bacterial metabolisms. Szymański et al. [6] indicated the possibility of using mixed bacteria cultures consisting of *Limosilactobacillus fermentum* S8 and *Staphylococcus carnosus* ATCC 51365 in the meat curing process with a reduced amount of sodium nitrite. Schulz and Sundrum [7] proposed a method to assess the marbling scores of bull carcasses using video-image analysis. Skałecki et al. [8] assessed the influence of the addition of raw fish materials (roe or fish meat) on the quality and nutritional value of pork pâtés. The substitution of fatty pork shoulder with raw fish materials (primarily roe) has been shown to be a good strategy that can be used to improve their nutritional quality. Tkacz et al. [9] determined the optimal blooming time (25 min) in beef muscles based on ΔE and analyzed the effects of muscle type and aging time on beef color and blooming. Tomažin et al. [10] reported that the dietary supplementation of fattening pigs with sweet chestnut wood extract and hops caused no major differences in the productive

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performance. The potentially beneficial effect of supplementation with sweet chestnut wood extract and hops on water holding capacity and oxidative stability was observed. Salejda et al. [11] showed that the addition of rapeseed oil and a humus-containing preparation to pig diets had a positive effect on raw meat quality and may have beneficial effects on human health due to the increased polyenoic fatty acid content. Jauhar et al. [12] presented supercritical carbon dioxide (SC-CO2) treatment with a low temperature and short time at various levels of pressure as a non-thermal processing method in the chicken meat industry. Ortiz et al. [13] evaluated the predictive ability of near-infrared (NIR) spectroscopy combined with chemometric methods as a rapid and affordable tool to ensure traceability and meat quality evaluation. Kęska and Stadnik [14] determined the effects of sonication and acid whey maceration on the oxidative stability, antioxidant activity and angiotensin-converting enzyme inhibitory activity of peptides obtained from dry-cured pork loins. Needham et al. [15] determined an aging period of eight days at 4 °C was required to achieve the maximum tenderness and minimize sex variability regarding the *longissimus thoracis et lumborum* (LTL) muscles of impala. Neffe-Skocińska et al. [16] assessed the microbiological and physicochemical quality and safety of dry fermented pork loins and sausages with the addition of the probiotic starter culture *Lacticaseibacillus rhamnosus* LOCK900, produced under industrial conditions. Bryant and Barnett [17] provided an updated review of the empirical literature regarding consumers' acceptance of cultured meat published in peer-reviewed journals.

Although submissions for this Special Issue have been closed, more in-depth research in the field of meat science and technology continues to address the challenges we face today, such as unconventional sources of meat, novel processing methods, and changes in consumer expectations.

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