

# Assessment of the possibility of using pork with a PSE defect in the production of dried sausages

Marta Chmiel, Tomasz Florowski, Sebastian Gorecki, Anna Florowska, Lech Adamczak, Dorota Pietrzak, Iwona Szymanska

Department of Food Technology and Assessment, Institute of Food Sciences, Warsaw University of Life Sciences-SGGW, 166 Nowoursynowska Street, 02-787 Warsaw, Poland

**Objectives:** The high prevalence of PSE (pale, soft, exudative) pork is a significant problem for the meat industry. The aim of the research was to assess the possibility of using pork with this defect in the production of dried sausages. In the case of such dried products, the deteriorated water holding capacity of PSE meat may not constitute a significant technological defect.

**Materials and Methods:** The raw material for the research was pork ham (*m. semimembranosus*) of good quality (RFN; red, firm, non-exudative) and with a PSE defect. Three variants of dried sausages were produced in four replications: i.e. a sausage in which all the meat (*m. semimembranosus*) was of good quality (W1), a sausage in which half of the RFN meat was replaced with PSE meat (W2) and a sausage containing only PSE meat (W3). The recipe and production technology of sausages was modeled on industrial conditions. More important technological information: dry curing of meat 48 h; grinding and proportions of meat ingredients: *m. semimembranosus* 30% ground Ø 20 mm, 50% ground Ø 8 mm, 20% grade III minced pork; mixing of the meat batter 3 min.; natural casings 28-32 mm; thermal treatment: smoking 50 minutes, roasting to 72°C (approx. 2 h); cooling down to 10°C; drying 4 days 8°C, relative humidity 70-80%. The quality of the sausages was assessed after reaching a yield of 68%. It included: water content (drying method), water activity (AQUA LAB), L\*a\*b\* color parameters (Minolta CR-200), texture parameters (shear force: Warner-Bratzler device with v-blade; compressive force: compress a cube shape samples of sausage (side 15 mm) by 25% of the height), organoleptic evaluation (sample acceptance test, 9 point scale from „strongly dislike” to „strongly like”; descriptors evaluated: color, odor, tenderness, hardness, taste, overall acceptability). The yield of the sausages after 4 days of drying was also compared. Statistical analysis: program Statistica 13.1, one-way analysis of variance, Tukey test,  $\alpha=0.05$ .

**Results and Discussion:** Replacing half or all of the amount of meat of good quality with PSE meat had no significant effect on the yield of the sausages after 4 days of drying (W1 67.1%, W2 65.9%, W3 66.0%). The produced sausages also did not differ significantly in terms of water content (W1 53.5%, W2 51.1%, W3 52.3%) and water activity (W1 0.93, W2 0.93, W3 0.93). By analyzing the color of the sausages, it was found that the replacing of all meat RFN with meat PSE resulted in a product with a significantly ( $P<0,05$ ) lighter color (W1 L\* 59.17, W3 L\* 61.56). This was the result of a lighter color of PSE meat than RFN meat. Other authors have also found this effect when analyzing the possibilities of using PSE meat in the production of cured meats [1] and canned meat products [2]. Moreover, it was found that replacing only half of the RFN meat with PSE meat had no significant effect on the value of the L\* (W2 L\* 60.1) color parameter. There was also no significant influence of PSE meat on the a\* (W1 15.14, W2 14.73, W3 13.92) and b\* color parameters of sausages (W1 4.90, W2 4.82, W3 5.31). Analyzing the effect of the addition of PSE meat on the texture parameters of sausages, it was found that the use of such meat had no significant effect on the tenderness and hardness of the sausages. There were no significant differences between the individual variants of sausages in the values of the shear force (W1 146.1 N, W2 150.8 N, W3 157.2 N) and compression force (W1 47.6 N, W2 48.3 N, W3 43.8 N). Also, other authors did not find any significant impact of replacing RFN meat with PSE meat on the texture of meat products from ground meat [1, 2]. To evaluate the possibility of using PSE meat in the production of dried sausages, their organoleptic quality was also examined. It was found that the replacing RFN meat with PSE meat had no significant effect on any of the tested sensory features of dried sausages. The addition of PSE meat also did not reduce the overall desirability of the product (W1 7.4 point, W2 7.2 point, W3 7.0 point).

**Conclusions:** Pork with PSE defect can be used for the production of dried sausages. The use of such a raw material, despite its low technological quality, does not have a significant impact on most of the studied sausage quality characteristics.

## References:

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**Key words:** Meat quality defect, PSE pork, Dried sausages, Quality of meat products