6 - 53 PROLONGATION OF THE FRESHNESS OF MEAT AND MEAT PRODUCTS

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The prolongation of the Freshness of meat and meat products has a considerable economic effect. Different means are applied to the achievement of this goal: refrigerated storage, use of protecting coatings, application of preservatives, etc. (1). The storage period for meat produced under refrigeration conditions is also limited because of colour changes, increase in weight losses, oxidation processes in lipids, growth of the available surface microflora, etc. A lot of work has been done of prolonging the freshness of meat and decreasing weight losses using protective coatings and now there are some positive results (1-4, 15). In a number of countries, there have been registered a great number of patents, concerning this very problem, which have been developed mainly on the basis of acetylated monoglycerides.

The object of the present paper is to investigate the possibilities for weight losses decrease in stored meat and meat products by way of covering them with a protective coating made of a Bulgarian preparation, which has been permitted by the Health Authorities for use in food products.

Material and Methods:

Muscles from veal round and perishable smoked and cooked sausages in natural and artificial casings i.e. "Assenitsa" sausage and "Strandzha" frankfurtes were used as an experimental material in laboratory conditions. We made use of an emulsion of the Bulgarian preparation GMS which had already been accepted for application in food products by the Public Health Services, as a protective coating. The coating was laid on the pieces of veal at the level of 3% in regard to their weight by way of vacuumization in Cryovac pouches and on the sausages, by way of dipping them into a bath with a freshly made emulsion. The samples treated so were stored in a hanging position at a temperature of 2-4 °C in the course of 4 to 10 days. Parallel to this, there were control samples of each type which had no protective coating. Periodically, changes in weight were followed and a sensory evaluation was made by trained panels, in the products which had been cooked in a water-bath for 1 hour.

Results and Discussion:

The results obtained from the laboratory experiments concerning changes in the weights of the samples are shown graphically: in Fig. 1, about weight losses in veal, and in Fig. 2, about weight losses in smoked and cooked sausages. Data are averages of three measurements.

It is clearly seen from the very first day of storage that weight losses in veal without a protective coating are nearly 3 times greater as compared to the ones in treated samples. In the course of the ten-days storage, this difference was not only preserved, but, what is more it increased till, in the end of the period, weight losses in control samples reached 39.5%, while this parameter in veal with a coating amounted only to 11.6%. The advantageous role of the additional treatment was not confined only to the decrease of weight losses. The sensory evaluation stands well enough in favour of the meat with the coating: Fresh appearance was preserved not only on the outer surface but also on the cut surface in the experimental samples. As for the surfaces olf the control samples, they were dry, with a dark-brownish-red colour and a strongly outlined ring of shrinkage, which could be seen upon cutting (see photograph 1). After thermal treatment, the flavour of the meat with a coating was irreproachable (we have a nearly fresh product) while in the control, diversions were detected in flavour and consistency as compared to those of fresh meat. Sensory evaluation indicated there had been no changes in flavour due to the protective coating. In the perishable smoked and cooked sausages in natural casings, we have 12.4% weight losses in the samples with a coating and 35.5% weight losses in the control samples after a four-days storage time, which means a three-fold decrease in weight losses. As for the sausages in artificial casings, the weight losses were : 17.4% and 35.5% in those with a coating and in the control samples, respectively.

Freshness preservation in sausages can be seen in photodraph 2. What makes impression is that the decrease of weight losses in the sausages with artificial casings is about 2.5 times, while in those with natural ones, almost three times for one and the same conditions of treatment and one and the same storage period. On the one hand, this is due to the greater porosity of the natural casings, where the excre-

tion of moisture is not so strondly hampered as is the case with the artificial casing,and on the other hand, it is due to the better cohesion of the coating on the natural casing.The sensory evaluation proved the advantages of the qualities of sausages with a protective coating in comparison to the control samples.

The results obtained from the conducted laboratory experiments give grounds to make the following conclusions stated below:

1.The protective coating made of the Bulgarian preparation GMS,regardless of the way of deposition,provides the opportunity for a considerable decrease of weight losses on refrigerated storage (2-4°C):in veal,about 3.4 times,and in perishable smoked and cooked sausages,from 2.5 to 3 times.

2.The dipping-procedure isolation layer formed on the sausages,decreases weight losses,with artificial casings,about 2.5 times,and with natural casings,about 3 times.

3.The coating, laid on meat and meat products provides an opportuhity for a considerable increase of the freshness preservation period on the basis of the decrease of weight losses and shrinkage and hampering colour changes.

4.The Bulgarian coating applied does not show any influence on the flavour of the thermally treated products.

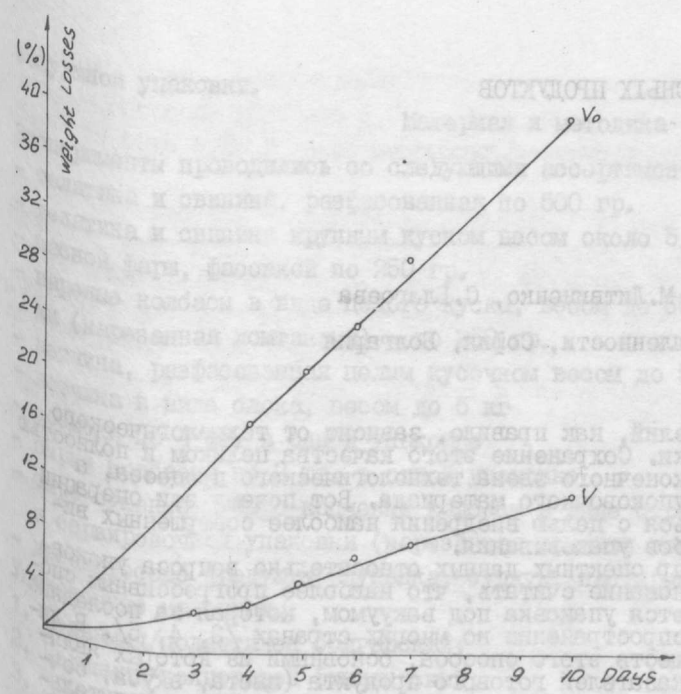

Figure 1
Weight losses (in %) during storage of veal:
V - non coated samples (conträl)
V^o - coated samples

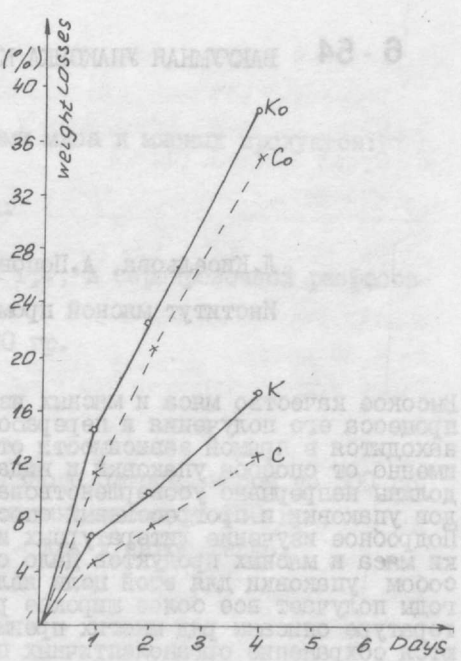

Figure 2
Weight losses (in %) during storage of sausages in:
____ artificial coating
- - - in natural coating
K_o and C_o - non coated samples
K and C - coated samples

Photograph 1

Photograph 2

Literature:
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