

## METHODS OF PRODUCTION OF NEW FLAVOURING AND AROMA COMPOSITIONS FOR SAUSAGES

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Synthesis of aromatizing substances for sausages has begun in Russia in 70th with the aim of substitution of natural spices for essential oils of spicing herbs. It was carried out by trial and error method, by scanning the known oils and varying their amounts. By these methods acceptable preparations have been created, which were certified and used rather widely in cooked sausage production.

Further investigations have shown not only possibilities of substitution of natural spices, but competitiveness and the own value of essential oils compositions. Thus, it was shown that they possess bactericide and antioxidant properties, help to maintain the colour of the products.

Methods of comparative analysis were developed for creating compositions. Mixes of black and sweet-scented pepper were compared with the compositions of essential oils: coriander, basil, fennel, rosemary, sage, dill, wild basil and laurel.

The analyses were carried out by gas chromatography method on Hewlett-Packard chromatograph with a flame-ionization detector. Spectrometric analysis of volatile components was carried out on spectrometer HP 5970/5890 of the same company. Identification of substances was made with the use of mass-spectra libraries EPA/NBS and Willey and on the basis of indices of confinement.

The second stage of work was the determination of composition of aroma-generating substances in model samples of sausage of type "Molochnaya", manufactured using the above-mentioned aromatizers. The formulation of "Molochnaya" includes 35% of higher grade beef, 60% of semi-fat pork and 5% of dry milk. Extraction of aroma-generating substances was carried out by distillation of water-ether compounds with the addition of N-dodecane as an internal standard.

Analysis of the mixture of black and sweet-scented pepper allowed to isolate 40 compounds of different chemical nature, from which 33 were identified; there are less compounds in the aromatizers, but they are stronger.

A large number of compounds in natural spices (although they are in low amounts) accounts for rich aroma. To determine the likeness of the compositions the numbers of general compounds in aromatizers and in the reference were compared in % (criterion of similarity). In the considered combinations this criterion was obtained in the range from 67% to 86%, which is sufficiently close in aromatic range to natural spices.

The efficiency of spices and aromatizers in sausage production was determined by formula:

$$R = K \frac{S_k}{S_a} \cdot 100, \%$$

where  $S_k$  and  $S_a$  - relative content of substances in product and in mixture, respectively

K - scale factor 0.83 for aromatizers and 0.2 for spices.

Analysis has shown that from 40 compounds, as obtained in initial spices, there remained in sausage only from 15 to 20, and average efficiency was  $R = 0.16\%$ .

Efficiency of aromatizers' compositions constituted  $R = (43 - 49)\%$ .

Organoleptical evaluation of the samples in general agreed with evaluation of aromatizers on efficiency criterion.

**Conclusion:** The developed procedure makes it possible to facilitate and accelerate the process of creation of new flavouring and aroma composition, approaching natural spices in aroma range, expand the range of the used initial components, create compositions that are more stable to thermal treatment.