UDC 637.027

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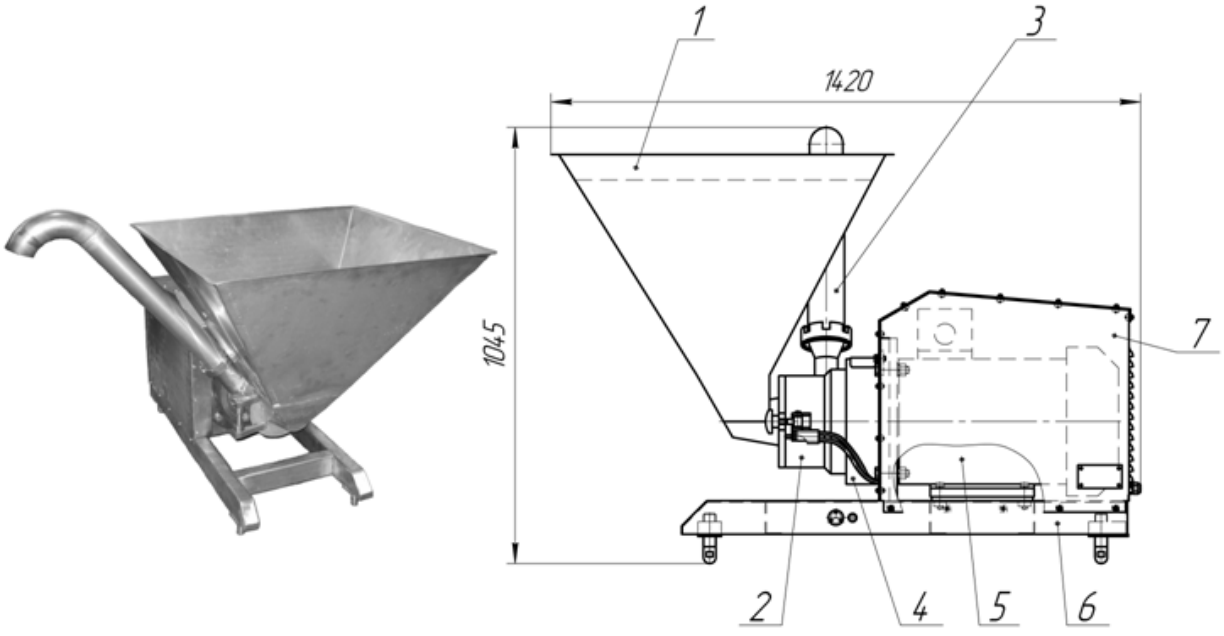
ENHANCED PRODUCTION TECHNOLOGY OF RESTRUCTURED MEAT PRODUCTS WITH THE USE OF A MICROCUTTER

Comminuting raw meats is among the most important processes for the production of restructured meat products – boiled sausages, frankfurters, pâtés, etc. On the one hand, the comminuting process of raw meats ensures the sensorial properties of the product acceptable to consumers, on the other hand it significantly increases the energy intensity of the production process as a whole. A typical scheme for the preparation of meat staffs for these products consists in the use of mincers followed by the use of cutters with a rotating bowl, these providing the proper quality of size reduction and are well developed in terms of design [1-4]. However, are unnecessarily metal-intensive, energy-intensive and expensive. Therefore, in to-day meat processing practice, along with them / instead of them, microcutters (flow cutters) are used – effective continuous comminuting machines that differ from cutters in a simpler design and lower metal consumption [5,6]. For example, the technological scheme for size reduction of raw meats for the production of restructured products, which involves the consistent use of a mincer, a cutter with a rotating bowl and a microcutter, has shown its effectiveness. Such a scheme allows saving energy resources by combining short-term processing on an energy-intensive cutter with a rotating bowl and further processing on a microcutter, the energy intensity of which is much lower. Thus, it is possible to reduce the cost of production without compromising the quality of the restructured meat products.

Based on the above considerations, the Institute of Food Resources of NAAS developed the Ya5-FEM emulsifier (Fig. 1) with two pairs of multi-toothed rotor-stator working bodies, designed to equip small and medium-sized enterprises. The productivity of the device is up to 2.8 mt/h, the installed power is 22 kW, the rotation speed of the drive shaft is 3000 rpm [5,6].



a) b)

Fig. 1 – Photo (a) and scheme (b) of the Ya5-FEM emulsifier: 1) hoper; 2) body; 3) unloading pipeline; 4) support; 5) electric motor; 6) frame; 7) casing

Accordingly, technological schemes for the manufacture of restructured products using an emulsifier have been developed. Fig. 2 shows a process flow diagram for the production of restructured boiled sausages.

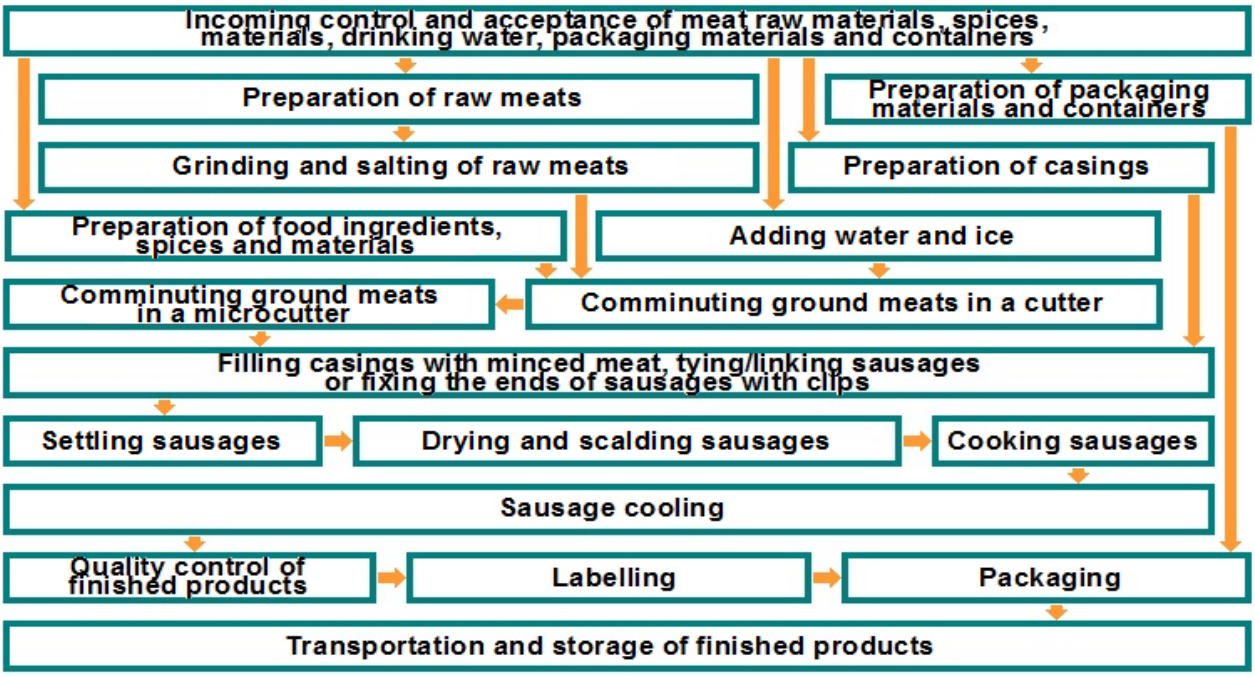


Fig. 2 – Process flow diagram for the production of restructured boiled sausages using an microcutter

The developed technology for the production of restructured boiled sausages using a microcutter complies with the national standard of Ukraine DSTU 4436:2005 [7]. The new technology provides for the possibility of assigning technological cycles of the microcutter operation in the process of comminuting minced meat with different contents of added water, based on the conditions for not exceeding the threshold values of the temperature of the processed minced meat.

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