



**TECHNICAL UNIVERSITY OF MOLDOVA**  
**Ministry of Education and Research of Moldova**  
**Ministry of Agriculture and Food Industry of Moldova**

# **PROCEEDINGS**

**of the International Conference**

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IN THE FOOD INDUSTRY–2024**

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## RATIONAL CURRENT FREQUENCY FOR ELECTRIC CONTACT HEATING OF MINCED MEAT PRODUCTS

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**Introduction.** Of the known methods of heating, electric contact heating (ECH) is effective. Low-frequency (LF) ECH is preferred over high-frequency (HF) because the generators required to produce HF require significant power consumption.

**Materials and methods.** Standard methods of measuring electrical and thermometric indicators were used for the study of ECH. Test samples were made according to the collection of recipes for dishes and culinary products.

**Results and discussion.** In order to determine the most rational conditions of ECN, a study of heat treatment of samples of molded meat minced meat semi-finished products was conducted with a voltage of 20 V at frequency values of 0.5 Hz and 50 Hz and with direct current. The kinetic dependence of the temperature change was obtained.

The nature of the processes are the same, but they differ in duration, which is 115 s for a current of 0.5 Hz, and 130 s for a current of 50 Hz. The difference is insignificant and within the margin of error. Compared to direct current, the duration of the latter is 3 times longer. The yield of the products after processing was also determined, which was 85.1 % of the initial one at 0.5 Hz, 83.4 % at 50 Hz, and 76.0 % with direct current.

**Conclusion.** The research testified to the insignificant difference in the course of processes in the LF range, as well as low efficiency when applying direct current. A rational value of the frequency is 50 Hz, taking into account the ease of obtaining this current from the electrical network.

**Keywords:** *electric contact heating, minced meat products, current frequency, temperature*

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