Galina POLISHCHUK, Galina SIMAKHINA,
Nataliia NAUMENKO, Ihor USTYMENKO
milknuft@i.ua
National University of Food Technologies, Kyiv
UKRAINE

DESIGNING THE TECHNOLOGY OF PASTOUS MILK-CONTAINING FOODSTUFFS FOR THE DIETS OF MILITARY PERSONNEL

The composition of new sorts of milk-containing foodstuffs with increased biological value, designated for military personnel (protein-fatty pastes enriched with pectinaceous raw materials), was scientifically proved in this work. To normalize the proteinaceous base by the content of fats, we have proposed the new recipe and the method to obtain the universal regularizing component, which is the stable and small-dispersed emulsion on the base of oil mixture balanced by fatty-acid composition. To reach this objective, we have chosen the mixtures containing the high-melting factions to form the plastic, pasty consistence of the final product.

To obtain and thereinafter stabilize the fatty phase of direct emulsions with 30-percent mass part of fat (as the analogue of cream normalizing the milky mixtures), we have analyzed technological efficacy of an array of Ukraine-originated food oleophilic emulsifiers of the following brands: Ester P hard; Ester Hard (T2); Ester P 02; Ester P 020. Selected emulsifiers are the mixes of polyglycerin and high-class food fatty acids. The highest emulsifying ability was detected for the Ester Hard (T2) emulsifier. Just this substance, in the amount of 0.5 % and in combination with sodium caseinate (mass part 3 %), has allowed obtaining the stable in time high-dispersed emulsions. This has become the result of homogenizing the milk-fatty systems with a help of laboratory homogenizer-disperser of 15M-8TA model «Lab Homogenizer & Sub-Micron Disperser» (GAULIN CORPORATION, Massachusetts, USA). There was affirmed that due to pressure in two-stage homogenization of 10±2,5 MPa and temperature of 65±2 °C the average diameter of fatty balls (no less than 80 % of the total amount) did not exceed 2 microns, and the stability of emulsion reached 100 %.

According to the results of accomplished researches, we have designed the recipes of emulsions and the technological scheme for their obtaining. The complicated foodstuffs (salty pastes with species and those dessert with sugar, lactulose, chicory and fruit-and-vegetable purees, given the trademark 'Bohatyr') will satisfy all the needs and tastes of military personnel during the combat operations.

KEY WORDS: *emulsions, proteins, fats, soldiers, nutrition*