



# ODESSA NATIONAL ACADEMY OF FOOD TECHNOLOGIES

## THE DEVELOPMENT OF VITAMINIZED BLENDED VEGETABLE OILS TECHNOLOGY

### Purpose and scope

The combination of vegetable oil blends with the optimal ratio of  $\omega$ -6  $\omega$ -3 fatty acids with the use of fat-soluble vitamins (tocopherol and  $\beta$ -carotene) is justified. That provides a daily human need and reduces their oxidative processes.

### Main characteristics and the development essence

The comparative analysis of the physicochemical properties and fatty acid composition of vegetable oils allowed us to justify the choice of oils (sunflower, pumpkin, linseed, lard) to compose blends with the optimum ratio  $\omega$ -6  $\omega$ -3 fatty acids: in two-component (10:1, 5:1) and in three-component (5:1). The feasibility of the joint use of tocopherol and  $\beta$ -carotene was confirmed, and this allows stabilizing the oxidation.

### Comparison with the world's analogues, the main development advantages

Analysis of vegetable oils leads to the conclusion that none of them fully possesses an optimal ratio of fatty acids, which would correspond to the physiological needs of man. Investigations of PUFA content revealed that their quantity in sunflower oil is 63.03%, linseed is 67.72%, pumpkin is 39.81% and red-headed is 66.91%, while in animal fat is 12.4%. Therefore, the combination of several oils achieves a balanced ratio of PUFAs, in order to replace animal fats with created blends of vegetable oils in recipes for meat pates and meat loaves.

### The intellectual property protection status

Six patents of Ukraine for utility model were obtained.

### Demand in the market

The possibility of production of vitaminized blended vegetable oils without modernization and reconstruction of existing fat-and-oil plants has been proved by the experiment.

### The readiness for development status

Formulations, technologies and normative documentation for the production of vitaminized blended vegetable oils have been developed, and their industrial approbation has been carried out. The developed technology is ready for industrial implementation.



Vitaminized blended vegetable oils

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