

17. TECHNOLOGY OF FORTIFICATION OF BLENDED OILS

L. Nikolova

Agricultural University Plovdiv

O.Topchiy, E.Kotliar

National University of Food Technologies

Modern food production moved to a new stage of development, when food program should solve the problem not only by meeting the needs of the population in some foods, but also by ensuring their balance on the basic nutrients.

Our greatest problem is that we eat too much fat containing fatty acid family of ω -6 (sunflower, corn, olive oil) and almost excluded from our diet products that are rich with fatty acids, ω -3 family (linseed and rapeseed oil). It is necessary to achieve a certain combination of ω -6 and ω -3 to maintain our health at the appropriate level.

Fatty foods with a specified balanced composition of fatty acids can be obtained in several ways. By transesterification method of picking up the required composition

of fatty acid components or by method of blending vegetable oils with specific fatty acid composition. The second way is more efficient and cheaper, and requires the development of technology for mixtures of vegetable oils with improved fatty acid composition of high physiological value.

Regulatory and consumer requirements that apply to mixtures of vegetable oils, dictate the need for research and the creation the methods of calculation for balanced fatty acid composition systems. This technique allows to obtain both and multicomponent systems of vegetable oils and enrich their fat-soluble vitamins, phospholipids and other biologically active components and use them for food and for their fat-based products.

Our aim is to study and investigate the properties of vitamins blended vegetable oils experimentally. The subject of our research is the technology of fortification of blended vegetable oils. Set blends vegetable oils were chosen as an object of research.

Analysis of available scientific, technical and patent information showed that the improvement of physical, chemical and technological criteria for getting mixed crude and refined vegetable oils with improved or optimal composition of fatty acids is relevant. Adding fat-soluble oils in the formulation of blended oils increases their efficiency when incorporated into food diet of people with cardiovascular disease and other diseases associated with excessive gain free-radical oxidation of lipids in the body. Thus, the fortification of foods with vitamins and polyunsaturated fatty acids can be considered as an important trend in diet matters and creating balanced recipes food with higher nutritional value.

Creating a blended oil enriched with biologically active components, has become an important purpose of our research. Taking into account the principles for food fortification, the choice of biologically active substances has been carried, a rational number and the technological aspects of incorporation was determined.

Blended oil is a system in which groups of PUFAs ω -6 and ω -3 are present in the necessary proportions. It is prone to oxidation processes at the most due to the increased content of polyunsaturated fatty acids. Depending on the characteristics of blended oils, vitamin E and β -Keratin were used as enriching ingredients that are physiologically important components to the human body, as well as active TCP are natural antioxidants.

According to the FAO, WHOS, the daily requirement for vitamin E and β -carotene is respectively 15 mg and 5 mg. Therefore we have chosen the following scheme of fortification of blended oils: 30% of the daily requirement of vitamin E and 30% of the daily requirement of β -carotene. This amount of vitamins should be contained in 20 g blended oil. The solubility and uniform distribution of 30 % β -carotene and 10 % of vitamin E is complicated due to their high concentrations. This requires: a long time for mixing and a higher temperature.

Efficiency technologies fortification of blended oils with essential PUFA composition is determined by the uniformity of the distribution of vitamins in the system and its stability.

Implementation of the proposed technological solution production of blended vegetable oils can be carried out on plants of various capacities, using different instrumental lines and requires no additional material costs.