

STUDY OF THE FATTY ACID COMPOSITION OF LINSEED OIL FOR THE PRODUCTION OF FAT COMPOSITIONS

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Abstract

The use of new oilseeds creates prospects for the development of a modern raw material base for oil processing enterprises and expands the range of oils for blending. For a healthy diet, flaxseed oil is necessary, which has a biological value and a high content of linoleic acid. It is known that linseed oil occupies one of the leading positions on the world stage, as it has a rich composition of fatty acids. In this regard, linseed oil was chosen as the object of research. Thus, the purpose of the study is to determine the qualitative characteristics and fatty acid composition of linseed oil.

As the object of the dairy product, the traditional creamy-sweet unsalted butter "Sergeevskoe", with a fat content of 82.5%, produced by "Krutaya Sergeevka" LLP (North Kazakhstan region, Petropavlovsk) was taken. As a result, a balanced fat base for functional spreads was developed in accordance with GOST 30418-96 "Vegetable oils. Method for determining the composition of fatty acids". The ratio of a mixture of milk fat and vegetable oil to obtain functional spreads was optimized based on the optimal ratio of polyunsaturated fatty acids ω -3 and ω -6. The studies were carried out using a Chromos GC1000 gas chromatograph, a flame ionization detector and a CP-Sil 88 column.

The results of the studies showed that a low content of saturated acids, about 10%, was found in the samples of linseed oil. The presence of 70% polyunsaturated acids, which contain a large amount of ω -3 and essential ω -6, indicates the possibility of using the oil for prevention and in diet therapy. Studies of the content of transisomers have shown that linseed oil contains no more than 1%. This is much less than in the traditional raw material for the production of margarine products - salomas, where the content of transisomers can reach up to 60%. Thus, the use of cold-pressed vegetable oils as the fat base of spreads is fully justified from the point of view of dietetics. To create a balanced fat base of spreads, the ratio of omega-6 to omega-3 was calculated, in this case, the ratio of linoleic acid C18:2 to linolenic acid C18:3. This analysis was carried out in accordance with GOST 30418-96. The content of linoleic and linolenic acids in the sample of refined deodorized linseed oil was 19.41% and 9.45%. The content of linoleic and linolenic acids in unrefined linseed oil was 15.35% and 44.88%. This suggests that the oils have the necessary content of polyunsaturated fatty acids ω -3-6-9. Thus, based on the conducted studies, the optimal ratio of milk fat and vegetable oil mixtures was determined, which is 80% milk fat and 20% linseed oil mixture. Due to the addition of the blend to the composition, the content of transisomers of fatty acids in the resulting emulsion was 2.8%, since in the initial product (butter) this indicator was equal to 4.8%. The content of NMJ, MNZHK, PUFA was 56.5%, 27.9% and 15.6%, respectively.

Consequently, data on the amount of fatty acids in the oil under study create prerequisites for the production of new foods with a balanced composition and high quality. Based on this, it is possible to recommend linseed oil not only for preventive nutrition, but also for the treatment of certain diseases.

Key words: *Linseed oil, Blending, Fat base, Gas chromatography, Transisomers.*