

Fatty Acids in Vegetable Oils Used for Cosmetic and Medical Purposes

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Biological value of food vegetable oils is defined by presence both a high-energy fatty basis, and a complex of minor components, such as mineral substances, fibers, vitamins, free organic acids (mainly hydroxy acids), connected in ester group polyunsaturated fatty acids, etc. The composition and contents of these components define physiological activity of different type oils.

Fatty acids play the important role in metabolism processes of vegetative and animal organisms. Forming ester groups, fatty acids participate in formation of biological membranes, adjust lipid metabolism, neural conductivity, in many cases carry out transport function and even possess pheromone activity.

Some fatty acids present in vegetable oils in small or trace concentration, possess strongly biological activity and define useful properties of oils, uniqueness of their physiological properties.

In view of small concentration and difficulty of lost-free separation these components from a fatty matrix, studying of their chemical compound represents significant difficulty.

For study of the composition minor components often use the methods of the systematic analysis which allow to connect processes separation and direct lipids definition, thus analyzing or all sum of components, or fraction unsaponifiable matters. The minimal change during preparation of a sample provides safety of composition and a concentration ratio as the basic, and minor components in the sample.

The chromato-mass-spectrometry method (GC/MS) is most effective for study of such complex natural mixes of components as foodstuff vegetable oils, including some recommended as medicinal, cosmetic or preventive preparations.

The composition of the fatty acids bounded in ester-group, was determined after alkaline methanolysis a sample of oil in an absolute methanol. The received mix of methyl ethers and unsaponifiable matters was extracted and analyzed totally on PerkinElmer Clarus 500MS chromato-mass-spectrometer. Free fatty acids, alcohols, sterols and other minor components of oils determined by GCMS, after removal triglyceride and ester sterols by TLC on Silufol.

Are specified composition and concentration of polynonsaturated fatty acids in such exotic natural oils, as cedar nut oil, walnut, almond, coconut, etc., traditionally used in our country as cosmetic and medical products. Fatty acids with ramified structure, keto-acid, components with polyterpene fragment, forming a set of unique properties of various kinds of vegetable oils are identified.