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REVIEW OF LITERATURE OF SIMPLE AND COMPLEX LIPIDS

Annotation. Information is provided on the classification, physiological and biological properties of simple and complex lipids.

Keywords: fat, oil, phospholipids, sulfolipids, cerebrosides

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ОБЗОР ЛИТЕРАТУРЫ ПРОСТЫХ И СЛОЖНЫХ ЛИПИДОВ

Аннотация. Приведены сведения о классификации, физиологических и биологических свойствах простых и сложных липидов.

Ключевые слова: жир, масло, фосфолипиды, сульфоллипиды, цереброзиды

A mixture of complex organic compounds obtained from plants and animals, consisting of fats and fatty substances with different chemical structure and physiological and biochemical properties, but common physical properties, is called lipids. Lipids (from Greek, Lipos - fats) are the main part of the organic matter of living cells, like proteins and carbohydrates. Lipids are insoluble or very poorly soluble in water. It dissolves in non-polar solvents: acetone,

benzene, chloroform, methyl and ethyl alcohols. They are hydrophobic substances. Lipids contain higher fatty acids, alcohols, aldehydes, carbohydrates, nitrogenous bases, amino acids, phosphoric acid and a large number of different cloud structure components. It is divided into the following groups according to its composition and characteristics.

1.Simple lipids. This group includes complex esters of high molecular fatty acids formed with some alcohols. For example, neutral fats - (complex esters of glycerol with high molecular fatty acids), fatty substances - waxes (complex esters of fatty acids with high molecular monoatomic alcohols) and others. Waxes also include steroids (esters of sterols with fatty acids).

2.Complex lipids. In addition to fatty acids and alcohols, the lipid molecule of this group contains other compounds: residues of phosphate or sulfuric acids, nitrogen-containing bases, some sugars, etc. For example, phospholipids, sulfolipids, cerebros

3. Other types of lipids. Lipids of this group are composed of compounds that make up lipids of the two groups indicated above or intermediate substances formed from their biosynthesis and decomposition. For example, mono and diglycerides (a complex ester formed by glycerol with one or two fatty acids), high molecular fatty acids, high molecular alcohols (sterols, vitamin A, zeaxanthins, etc.), fat-soluble vitamins D, E and K , high molecular weight hydrocarbons (including carotenoids), simple esters of glycerol, etc.

In medical and pharmaceutical practice, simple lipids (neutral fats) - triglycerides and waxes are used as a base, solvent and binding agent for the preparation of medicinal substances, ointments and other types of drugs. The science of pharmacognosy deals only with the study of ordinary lipids.ides, gangiosides, etc. Although oils and waxes are similar in appearance and physical properties, they are very different in terms of chemical properties. Fats are very common in the plant and animal world and serve as reserve nutrients for them.

Oils are a mixture of complex organic substances obtained from plants and animals. The main part of these mixtures is made up of glycerides - complex esters of glycerol and fatty acids. Therefore, it is possible to form a complex ester formed by triatomic alcohol - glycerol with higher fatty acids. Although the number of acids that make up oils is more than 30, the number of acids that are always found in the composition of oil does not exceed 8.

In addition to glycerides, the main part of oils contains the following compounds:

1. Pure fatty acids are always found in oils. They are formed as a result of the hydrolysis of fats during the extraction and storage of fat.

2. Sterols are high-molecular polycyclic monoatomic alcohols and their complex esters formed with fatty acids. Sterols found in animal fat - zoosterols are mostly cholesterol, and phytosterols are sitosterol, stigmasterol and ergosterols.

3. Phosphatides are mixed complex esters of glycerol formed with fatty and phosphoric acids. Phosphatides contain nitrogenous bases, except for glycerin, which is a phosphoric acid. Among phosphatides, lecithin is often found in oil.

4. Lipochromes are dyes that give color to oils. These include chlorophyll, carotenoids - carotene, xanthophyll, as well as gossypol found in cottonseed oil and pigments in fish oil.

5. Vitamins - fats often contain A (or carotene), B, E and other vitamins.

6. Chromogenic substances are organic substances that cause certain color reactions of oils. For example, sesamol in sesame oil and gossypol in cottonseed oil are among them.

All the above-mentioned compounds are called lipoloids. Lipoids are fat-soluble and water-insoluble. In addition to lipids, fats contain proteins and mucous substances, enzymes, hydrocarbons, essential oils, resins, high

molecular alcohols, minerals and other substances. When extracting fat from plant and animal organs, these substances can enter into their composition.

In a living plant cell, oils are always in liquid form. Along with oil, the lipase enzyme is found in the cells. Lipase enzyme synthesizes oil from glycerol and fatty acids and breaks it down into these substances. Plant growth conditions (growing season, climate, moisture content, soil composition, etc.) greatly affect the quantity and quality of the oils contained in them.

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