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CHEMICAL COMPOSITION OF CEREAL GRAINS AND THEIR IMPORTANCE AS A SOURCE OF ESSENTIAL FATTY ACIDS

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Annotation

This article scientifically discusses the chemical composition of cereal grains and their importance as a source of essential fatty acids. Cereal grains are rich in proteins, vitamins (especially group E and B), minerals and biologically active compounds, and have important nutritional value for the human body. In particular, essential fatty acids such as linoleic and linolenic acids are not synthesized in the body and must be obtained from external sources. The results of the study show that the use of cereal grains is of great importance in preventing cardiovascular diseases, strengthening the immune system and improving metabolic processes. At the same time, the prospects for the production of functional food products based on cereal germs are also substantiated.

Keywords

cereal germ, chemical composition, essential fatty acids, linoleic acid, linolenic acid, biologically active substances, food technology, functional products, healthy nutrition.

Today, proper nutrition is one of the important factors in maintaining and strengthening human health. Increasing the biological value of food products, enriching them with useful substances and producing functional products has become a pressing issue. In this regard, cereal germs (the embryonic part of the grain) are distinguished by their unique chemical composition. Although cereal germs have been used in human nutrition since ancient times, their full nutritional and biological value has been studied in depth in recent years. In particular, they are of great interest as an important source of essential fatty acids.

Cereal germ is an element that forms the vital active part of the seed of a plant and ensures the development of a new plant. Although it makes up only 2-3% of the grain, the majority of nutrients are concentrated in this part. The bran of cereals such as wheat, corn, barley and oats is structurally similar and contains components of high biological value.

Cereal bran has a complex and rich chemical composition. It is rich in proteins, fats, carbohydrates, vitamins, minerals and biologically active components.

Firstly, cereal bran contains high-quality proteins, which are rich in amino acids necessary for the body. These proteins are easily digestible and play an important role in the process of cell regeneration.

Secondly, fats are one of the most important components of cereal bran. They contain a large amount of unsaturated fatty acids, especially essential fatty acids (linoleic and linolenic acids). These substances are not synthesized in the body, therefore they must be obtained through food.

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Thirdly, cereal bran is rich in vitamins. Vitamin E in particular is known as a powerful antioxidant, protecting cells from the effects of free radicals. In addition, B vitamins (B1, B2, B6, folic acid) are important in regulating metabolism.

Fourth, minerals, including iron, zinc, magnesium, phosphorus and potassium, are found in large quantities in cereal grains. These elements play an important role in ensuring the normal functioning of the body.[1]

Essential fatty acids are substances that are necessary for the human body, but cannot be synthesized in the body. They are mainly divided into two groups: omega-6 (linoleic acid) and omega-3 (linolenic acid). Cereal grains are a rich source of these acids.

Linoleic acid is a component of cell membranes, ensuring their elasticity. It is also important in maintaining skin health, reducing inflammation and supporting the immune system.

Linolenic acid is beneficial for the cardiovascular system, reduces cholesterol levels and improves blood circulation. This acid also has a positive effect on brain activity and the normal functioning of the nervous system.[4]

Regular use of cereal grains has a positive effect on human health. First of all, they reduce the risk of cardiovascular diseases. Essential fatty acids increase the elasticity of blood vessels and normalize blood pressure.

Secondly, cereal grains strengthen the immune system. The vitamins and antioxidants they contain protect the body from various diseases.

Thirdly, they improve the functioning of the digestive system. The fibrous substances contained in cereal grains activate intestinal peristalsis and prevent constipation.

Fourthly, cereal grains are also an important source of energy. They provide the body with the necessary energy and support physical and mental activity.[3]

Cereal kernels are widely used in the food industry. They are used in the production of bakery products, dietary foods, baby food and biologically active additives. Cereal kernel oil is especially valued as a high-quality vegetable oil.

With the help of modern technologies, products obtained from cereal kernels are preserved in a state that is maximally beneficial for the human body. This allows them to be widely used as functional food products.[2]

In recent years, many scientific studies have been conducted on the beneficial properties of cereal kernels. The results of the studies confirm that they have antioxidant, anti-inflammatory and immunomodulatory properties.

In the future, there are prospects for the production of new types of functional food products based on cereal kernels. The importance of these products will increase, especially in promoting a healthy lifestyle.

In conclusion, cereal kernels occupy an important place in human nutrition with their rich chemical composition and high biological value. They are an important source of essential fatty acids, which are of great importance in ensuring the normal functioning of the body. The effective use of grain kernels is important not only for strengthening human health, but also for the development of the food industry.

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