

20. Useage of alternative sources of protein in meat production

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Introduction. Today in the world there is a shortage of dietary protein of animal origin and at the same time the irrational use of by-products of the meat processing industry. In the production of meat products, the lack of animal protein is mainly compensated by protein of plant origin [1].

Materials and methods. Currently, many meat producers are abandoning the use of soy in favor of connective tissue proteins of pork skin, which is undoubtedly due to the desire to reduce the cost of the finished product and get rid of the by-product (pork skin), while gaining tangible benefits.

Results. Collagen - fibrillar protein, has a strengthened structure and is soluble in ordinary solvents. When the pH shifts to the acidic side from the isoelectric point, collagen is able to swell strongly in aqueous solutions, increasing its mass by 1.5-2.0 times, and in a state of complete swelling can reach up to 1000% by weight [2, 3]. Elastin and reticulin have properties similar to collagen. Elastin is rich in glycine, alanine, valine and proline, the total content of which in elastin is almost 70%. In its usual form, elastin and reticulin are practically not broken down by digestive enzymes and are poorly absorbed by the body.

The protein composition of pork skin is represented mainly by collagen - a protein that provides elasticity to the tissues of the human body, which are part of the skin, ligaments, tendons, cartilage and internal organs. The latest world scientific research shows that the human body needs digestible, digestible collagen. It is known that the protein component of the human body consists of approximately 50% of muscle and 50% of connective tissue, of which 80% is collagen fibers and 20% elastin. Animal protein in the human body is consumed mainly for plastic needs. Amino acids that are part of muscle tissue provide the synthesis of muscle tissue, and amino and amino acids of collagen - the synthesis of connective tissue. In this case, native collagen is poorly absorbed by the human body, and hydrolyzed - by 75-80%.

As a person ages, his body stops producing the right amount of collagen. For this reason, skin aging occurs, various joint diseases can occur. Hydrolyzed collagen is well absorbed by the gastrointestinal tract. Studies have shown that collagen consumed by humans is able to restore the integrity of cartilage, strengthen ligaments and relieve pain in joint damage. An increase in the density of collagen fibers and fibroblasts of the skin, cartilage and ligaments was found.

Conclusion. The main amino acids found in collagen of different types are alanine (11%), glycine (35%), proline and hydroxyproline (21%).

References.

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