CHEMICAL COMPOSITION OF CATTLE SKIN

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Annotation: *This article provides information on the chemical composition of animal skins. Data on the chemical composition of cattle skin, protein composition, protein properties, quantitative indicator of protein, practical significance, changes in the process of chemical processing of skin are presented.*

Keywords: *skin, cattle, collagen, keratin, elastin, globulin, amino acid.*

The skin is the layer covering the animal organism, which protects the animal organism from the effects of the external environment and is actively involved in the exchange of substances. The skin consists mainly of four layers: wool cover, epidermis, derma and subcutaneous tissue. For leather, only derma, epidermis, wool cover is used, while in the production of leather, fur and sheep-coat.

The Epidermis is a thin layer on the underside of the wool cover and the top of the derma, which is mainly made up of several epithelial cells. For most animals, the thickness, weaving nature of the collagen fiber bond, i.e. the angle of bending and the density of location, varies depending on the location of the skin parts in the animal's body. The derma structure of large horned molars and horse skins is particularly diverse- the fiber bond in the cow's closing part is strong, the fibers in the peripheral parts are soft, the bogdami is loose. The skinosti adipose tissue is located under the derma, mainly collagen. partial elastin consists of fibers. Blood vessels pass between them. A layer of fat is located in this layer, and this in turn depends on the type of animal, the level of feeding and in what season it was slaughtered.

Animal skin differs from each other in its complex chemical composition. Depending on the type of animal, age, conditions of its storage, the chemical composition of the skins can change. However, the main components that make up the skin are: 64-68% water, 32-36% dry matter. In turn, the dry matter of the skin consists of various organic and inorganic substances. Organic

substances include proteins, lipids and carbohydrates. The protein components are made up of globular compounds (albumins, globulins) and fibrillar compounds (collagen, reticulin, elastin and keratin), as well as enzymes. Of these, the protein is approximately 90-95% at the expense of the amount of dry skin substance. Lipids are divided into two groups: fat, wax and complex fatty compounds with other substances. Lipids in the skin are around 3-10%. Carbohydrates make up 1.5-2.5% of the skin. In the skin, the mineral substances are sodium and potassium ions and, to a lesser extent, calcium, iron, magnesium, aluminum, zinc and other substance ions, the amount of which is 0.8% of the dry matter mass of the skin.

Proteins — these are made up of organic compounds, consisting mainly of amino acid residues. Amino acids are derivatives of acids, one or more hydrogen atoms in an acid radical

several aminoguruhga are formed by the exchange of mineral substances in the skin of sodium and potassium ions and a smaller amount of calcium, iron, magnesium, aluminum, zinc and other substance in the state of ions, the amount of which is 0.8% of the dry matter mass of the skin.

Factors of origin of animals include: type, breed, sex and its age, living conditions, climate, feeding and storage conditions. The animal species also has a great influence on the properties of the skin. In each animal species, skins have their own characteristics and a special structure. The area of the skins is influenced by the breed of the animal, since each animal has its own specific living weight for the breed and The Shape of the structure of the torso, which determines the area of the skins.

As the animal grows, its mass, skin area, thickness, and microstructure change. The skin of adult moles is dense, not too soft, and the thickness is uneven than that of a small one. The wool cover of most young moles is thinner, softer, velvety than that of adults, and they differ in color. Cattle sex also affects the size of the skins, especially since the sexually mature male mole skin is larger than that of the female

The presence of different proteins in the skin and skin varies depending on the age, type, breed and sex of the animal. For example, as an animal grows larger, the amount of soluble proteins in it decreases. The average protein content of animal skin, in the dry mass of the derma, is in percentage: collagen — 64.0 — 80.0; elastin — 0.3 -1.0; albumins — 1.0 — 3.5; globulins — 1.0 — 3.2; complex proteins — 0.5 — 3.5.

Collagen is an important and abundant protein group found only in the animal kingdom. From collagen, an attached tissue of fibers is formed. Collagen is considered to be the main composition of the skin lining, bones, pores, cartilage, accounting for 36.0% of all proteins in the animal's body. Collagen Origin (type of connective tissue, type and age of the animal) is distinguished by its simple and chemical composition, character and morphological structure. Differentiation is primarily determined by its simple composition relative to the action of hot water and the product of hydrolytic (in water) decomposition. The greatest differentiation is determined by the property of producing gelatin when exposed to hot water.

Keratin, a member of the horny substance, is found in the horny layer of the epidermis, wool, Branches, Bones, hooves, feathers. It, like collagen, varies depending on the conditions of its appearance as well as the passage of the body's process at the time of its survival. Keratin is distinguished from other proteins by the presence of a large amount of cysteine and sulfur in its composition. But the protein substances of the wool pulp retain a small amount of cysteine and sulfur. The amount of keratin in the skin varies within a wide range, depending on the type and age of the animal. In tanning, the keratin of wool is of great importance, mainly in the production of fur. The simple

component of keratin, in%, is: carbon - 50.65; hydrogen - 7.03; nitrogen - 17.7; oxygen — 20.0, sulfur-6.1 %. The main molecular chain of keratin, like other proteins, is a chain formed from amino acid residues, attached by a peptide bond. Keratin has the property of resistance to enzymatic action.

Elastin is considered the main component of the elastin fiber of the connective tissue, forming a mesh on top and bottom of the skin tissue. Elastin is present in the skin in an amount of no more than 1.0% compared to the collagen substance. Elastin, like collagen and keratin properties, changes the animal's body according to its structure, age. The main feature of elastin is its high degree of elasticity. The simple component of elastin in % is: carbon - 54.20; hydrogen - 7.26; oxygen - 16.80; nitrogen - 16.60.

Reticulin is the main component of reticulin fibers in connective tissue, which are scattered on all sides and are made up of fibrils, found in the form of a mesh. Reticulin is found in the skin, not in large quantities. Reticulin fibers are made up of fibrous proteins, immersed in a fragile matrix (a fine-grained substance that fills the structure inside the dark, viscous tissue and the space between them). Complex proteins in the skin dissolve in weak alkalis. The separation of different proteins from the skin is based on the property (regardless of specific solubility) that proteins in certain groups undergo into solution as they change protein parts without breaking down.

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