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STUDY OF PHYSICO-CHEMICAL PROPERTIES OF RABBIT SKIN

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Annotation: *This article provides information about the tanning of rabbit skins, the stages of the tanning process and the chemicals used in this process, as well as the results of a study of the physicochemical properties of the skin. The content of moisture, ash, protein and oil in the skin is analyzed.*

Key words and phrases: *rabbit, skin, mineral content, fat, moisture, oil, protein, fiber.*

ИЗУЧЕНИЕ ФИЗИКО-ХИМИЧЕСКИХ СВОЙСТВ КОЖИ КРОЛИКА

Аннотация: *В данной статье приведены сведения о дублении шкур кролика, этапах процесса дубления и химических веществах, используемых в этом процессе, а также результаты исследования физико-химических свойств кожи. Анализируется содержание влаги, золы, белка и масла в коже.*

Ключевые слова*: кролик, шкура, минеральный состав, жир, влага, масло, белок, клетчатка.*

Introduction. Rabbit farming provides farms with several useful products, including meat as the main product and by-products such as leather and animal wool, as well as Tails and front paws for the production of ribbons. Rabbit skin is an excellent by-product and can be used in the manufacture of clothing, bedding, Arts and crafts

and other things. However, samples for production must have good meat characteristics and the quality of the skin on sale.

Literature revue. The skin of the White Rabbit strain is very desirable because it provides resistance, good elasticity and other beneficial properties that distinguish it from the skin of other species [1].

The skin has the ability to absorb and retain water, which is due to its thermoregulatory function in the animal's body. The skin is mainly composed of water, minerals, natural fats, protein substances, pigments and carbohydrates [2]. While tanning maintains the fiber quality of the skin, the fibers are separated to remove inter-fiber materials and chemical residues. After this stage, the skins are treated with additive reagents characterized by softness, elasticity, elasticity, tensile strength and physical/mechanical properties, which allows them to be applied to the skin, or rather, to the raw product, transforming it into a different production area[3].

The use of various tanning reagents and the extraction of the skin from different parts of the animal according to its head-caudal axis and in different directions (longitudinal and transverse) can lead to a change in the level of skin resistance. This hypothesis requires a quantitative test to determine the level of resistance in such skin samples. To this end, the current research evaluates the chemical composition and physicochemical and mechanical.

Materials and Methods.

Rabbits were obtained from rabbits bred in the Qushtepa District of the Fergana region. The skin was kept at -10°C until it was processed. The skin tanning process was carried out in the laboratory. For skin processing, the skin was soaked in water at room temperature, infused with chromium salts, and processed with herbal and synthetic tannins [4]. The acidification process consisted of the following applied steps: soaking, cleaning, Liming (3% sodium sulfide, 3% lime, 100% water, 2 times), Liming, degreasing, salting, tanning (6% chromium salts), neutralizing, re-tanning. (2% and 2% vegetable and synthetic tannins) and staining, then lubricating (8% oils), drying, stretching and softening.

After the skin was increased, skin samples from the dorsal and lateral sides were used for stretching strength and elasticity tests and progressive tear analysis. The samples were scraped off the skin and then stored for 24 hours at around 23°C and in an environment with 50% air humidity. Each sample was evaluated for its thickness, tensile strength, elasticity, and gradual tearing. A dynamometer with a clearance rate of 100±20 mm/min was used for endurance testing.

Skin samples were collected and ground to form a "skin powder" which was used to measure pH, levels of extractable substances in dichloromethane, and levels of chromium oxide.

The chemical composition of leather and semi-finished leather was determined. To determine the composition of the skin, four samples were taken and packed in plastic bags, labeled and frozen at -18°C. After smelting, these samples were ground in a cutting mill. To test the chemical composition of semi-finished hinges, fixation steps and four tissue samples collected after lubrication, drying and softening were used.

Discussion

There have been statistical differences between natural skins and semi-finished skins after the lubrication, drying and softening stages. Compared to natural rabbit skin, semi-finished skin has several different properties. The humidity in natural rabbit skin was 64.36%, while in semi-finished skin it decreased to 31.76%. The protein content in natural skin was 29.62%, compared to the protein content in semi-finished skin at 38.48%. Skin processing involved the removal of hypodermis and a small amount of collagen fibers along with adipose tissue. During processing, globular proteins are also released under the action of proteolytic enzymes added to the purification step. Despite the loss of soluble proteins during cooking, the amount of raw protein is concentrated due to the reduced moisture content.

Natural skin contains 5.96% oil (essential extract). After chemical processing, the addition of degreasing and emulsifiers of natural oils, collagen fiber was washed out and excess fat was removed to ease the reaction of tanning agents with collagen

fibers. Removing lipids at the beginning of the process prevents chemicals from entering them and reacts with collagen fiber [5]. This can interfere with the cooking process and therefore the consistency and quality of the product. It has been reported that lipid levels of more than 4% in the skin are harmful to tanning operations. If the degreasing phase is not effective, greasy spots appear on the surface of the skin after staining and drying. However, when processing is complete, an oil emulsion must be added to lubricate the collagen fibers after the fibers react with the acidifying agents. The skin fat level initially observed in the study at 5.96% rose to 24.95% after drying due to the addition of fats in the lubrication phase. Drying the material has led to a decrease in the level of moisture and, as a result, a concentration of oils, which provides a high content of essential extracts on semi-finished skin. The fat content in the skin was due to the effect of fats on fiber structures during the lubrication process.

This stage is directly related to the specific characteristics of the skin, such as touch and softness, creating the desired skin compatibility.

Compared to natural skin (2.08%), the semi-finished (8.58%) mineral (ash) content of rabbit skin processing stages increased due to the addition of certain products (such as sodium chloride, chromium salts, sodium bicarbonate and tannins) in various mixtures. The concentration of minerals in semi-finished skin also occurred during the drying of the skin due to a decrease in moisture.

Conclusion.

Based on the above, it should be noted that at the end of the skin processing process, due to drying, the moisture content of the skin is low, as a result of various stages of the tanning process and the addition of chemicals, protein, fat and ash increase. The method used for tanning leads to a high amount of oil/oil on semi-finished skin, a low chromium content and a higher pH value recommended for combining oils and dyes, which affects skin resistance.

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