EFFICACY OF SANTOMECTIN AGAINST ECTOPARASITES IN SHEEP AND GOATS

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Abstract. Maqolada ektoparazit qo‘zg‘atuvchilar, epizootik ma’lumotlar, qo‘y va echkilarning psoroptozining kechishi va alomatlari keltirilgan. Shuningdek, qo‘y va echkilarda psoroptozni davolash antiparazitar preparat - santomektinni qo‘llash natijalari keltirilgan.

Abstract. The article presents ectoparasitic pathogens, epizootic data, and the course and symptoms of psoroptosis in sheep and goats. The results of the use of the antiparasitic drug santhomectin for the treatment of psoroptosis in sheep and goats are also presented.

Kalit so‘zlar. Ektoparazitlar, kanalar, qo‘ylar, echki, psoroptidlar, santomektin, spontan, in’eksiya.

Keywords. Ectoparasites, mites, sheep, goats, psoroptid mites, Santomectin, spontaneous infestation, injection.

Relevance of the Study

In the Republic of Uzbekistan, increasing the population of Karakul sheep, expanding the production of Karakul-breeding products, improving breeding work on a scientific basis, and ensuring the deep processing of Karakul products and raw materials remain key priorities for specialists in the sector. Relevant state measures have been implemented under a series of presidential resolutions adopted in 2018, 2019, 2022, and 2023 to accelerate the development of the livestock industry. Over the past period, the number of sheep and goats in the country has nearly doubled, sheep breeds have been improved through scientific research, and new desert forage crop varieties have been developed. Nevertheless, in recent years, certain parasitic diseases, particularly ectoparasitic infestations, have negatively affected the rapid development of sheep and goat farming. Among the many ectoparasites affecting livestock, mites are responsible for severe pathological conditions.

Mites of the group Acari (Acarida) comprise more than 10,000 species and are adapted to a wide range of ecological conditions, including soil, plants, animals, and humans. Mites of the family Psoroptidae, genus Psoroptes, live on the skin surface without burrowing into it; instead, they pierce the skin and feed on host tissues and blood. The species P. ovis is widespread in sheep and goats and causes substantial economic losses to livestock production. Surface-dwelling mites most commonly parasitize areas of the skin with dense fleece and increased moisture. In sheep and goats with reduced resistance, the disease runs a more severe course. Optimal conditions for the development and reproduction of these skin-feeding mites are formed during the colder seasons of the year.

The first body regions affected are usually the lateral surfaces of the animal. As the mites move along the body, their mouthparts irritate skin receptors, leading to pruritus. As a result, lambs traumatize the affected areas with their teeth, wounds are formed, and the skin becomes moistened with saliva. This creates favourable conditions for the formation of

primary psoroptic lesions. Toxins introduced into wounds through mite saliva cause inflammation of the skin; lymph accumulates on the surface, gradually thickens, and, together with dead epidermal cells, forms crusts. Pyogenic microorganisms subsequently colonize these lesions, while the mites and their waste products intensify the inflammatory process and adversely affect the general condition of the animal. Absorption of products of cell lysis, metabolic by-products, and microbial toxins leads to eosinophilia and other hemodynamic disturbances. When host resistance increases, for example after shearing in summer, the psoroptic process subsides and tends to become chronic. In addition, parasitic mites may carry causative agents of certain highly dangerous infectious and parasitic diseases and may transmit them while feeding on the blood of healthy animals and humans.

Aim of the Study

The aim of the study was to improve methods for controlling ectoparasites that are common in sheep- and goat-breeding farms and cause serious economic damage, and to refine the use of new agents that are safe for the animal organism.

Materials and Methods

The study was carried out on Karakul-breed sheep, lambs, and goats kept in the flocks of "Qorako'l naslchilik" LLC in Qorako'l District, Bukhara Region. For the experiment, 10 Karakul sheep and 10 goats infested with Psoroptes mites were selected. Santomectin was administered subcutaneously into the rump region at a therapeutic dose of 1 ml per 50 kg of live body weight. In sheep and goats with severe disease, the drug was administered a second time after an interval of 7-10 days.

The composition of 1 ml of Santomectin was reported as follows: 5 mg ivermectin and 125 mg closantel sodium as active ingredients, together with the following excipients: dimethylacetamide, 0.2 ml; triethanolamine, 0.003 ml; benzyl alcohol, 0.05 ml; glycerol formal, 0.2 ml; and propylene glycol up to 1 ml. Santomectin is a product of "UltraVet" LLC. Closantel, one of the components of the preparation, belongs to the salicylanilide class and possesses antiparasitic activity against trematodes, some nematodes, and larvae. It acts on mitochondrial membranes and disrupts electron transport involved in phosphorylation, thereby depriving parasite cells of their energy source and leading to their death. Ivermectin, another component of the preparation, belongs to the class of macrocyclic lactones and exerts a pronounced antiparasitic effect against gastrointestinal and pulmonary nematodes, subcutaneous parasites, nasopharyngeal bots, gastric bot larvae, lice, blood-sucking ectoparasites, and larval and adult stages of parasitic arthropods. By enhancing the release of inhibitory gamma-aminobutyric acid, it disrupts nerve impulse transmission in parasites, resulting in paralysis and death. After parenteral administration, the components are well absorbed from the injection site and distributed to many organs and tissues. Therapeutic concentrations of ivermectin and closantel remain in the animal body for 10-12 days after administration. At the recommended doses, the preparation is described as low-toxic. The active substances are excreted in urine, blood, feces, and, in lactating animals, also in milk. The withdrawal periods were indicated as 35 days for meat and 12 days for milk.

The product is indicated for cattle, sheep, goats, pigs, horses, dogs, and cats against helminths of the internal organs and against cutaneous parasites, including mange mites and

other ectoparasites. It is administered subcutaneously at a dose of 1 ml per 50 kg body weight, equivalent to 0.2 mg/kg. In small animals, the required dose may be diluted with sterile water to allow accurate administration. In severe cases, treatment may be repeated twice at intervals of 7-10 days.

Results

Sheep and goats infested with Psoroptes mites were separated from the flock, and Santomectin was administered subcutaneously to the affected animals at a therapeutic dose of 1 ml. Three to four days after the drug had fully entered the bloodstream, the mites were observed to die and appear on the surface of the fleece in sheep and goats. In severely affected animals with reduced immunity, impaired metabolism, and poor nutritional status due to inadequate, low-quality feeding, mite mortality proceeded more slowly; therefore, the preparation was administered a second time after 7-10 days at an increased dose of 2 ml.

Conclusions

The use of Santomectin in sheep and goats, at the prescribed doses, did not produce observable adverse toxic effects on the organism and showed high efficacy against the causative agents of psoroptic mite infestation. The preparation also exhibits strong antiparasitic activity against gastrointestinal and pulmonary nematodes, larvae of subcutaneous, nasopharyngeal, and gastric bots, blood-sucking lice, and both larval and adult stages of sarcoptoid mites. Depending on the season and ambient temperature, both dry and wet treatment methods may be effective for managing sheep affected by ectoparasites and for preventing infestation.

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