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EVALUATION OF THE EFFICACY OF “FENPRAZ FORTE” FOR THE
DEWORMING OF DOGS

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Abstract. This article presents the results of studies on the etiology, biological characteristics, and control of *Taenia hydatigena*, one of the most widespread cestode parasites affecting dogs. Particular attention is given to the evaluation of the anthelmintic efficacy of **Fenpraz Forte** against canine taeniosis. Experimental investigations were conducted to determine the therapeutic effectiveness of the drug under field conditions. The obtained results demonstrated a high antiparasitic activity of Fenpraz Forte, ensuring effective elimination of *T. hydatigena* and contributing to the improvement of animal health and the prevention of further parasite transmission. The findings indicate that Fenpraz Forte can be recommended as a reliable and effective anthelmintic agent for the treatment and control of canine cestodosis caused by *Taenia hydatigena*.

Keywords: *Taenia hydatigena*, *Cysticercus tenuicollis*, scolex, hermaphroditic proglottid, canine cestodosis, dogs, Fenpraz Forte, pyrantel pamoate, praziquantel, ivermectin, anthelmintic efficacy, deworming.

Relevance of the Study. Cysticercosis caused by the larval stage of *Taenia hydatigena* (*Cysticercus tenuicollis*) remains one of the most important parasitic diseases affecting sheep and goats, resulting in considerable economic losses to the livestock industry worldwide, including in Uzbekistan. The disease leads to reduced productivity, weight loss, condemnation of infected organs at slaughter, and additional veterinary costs, thereby negatively impacting the profitability of livestock farming.

Recognizing the importance of livestock production in ensuring food security, the Government of Uzbekistan has implemented a number of measures aimed at improving animal health and increasing livestock productivity. In this regard, the Resolution of the President of the Republic of Uzbekistan No. PQ-121 dated February 8, 2022, “On Measures for the Further Development of Livestock Farming and Strengthening the Feed Base,” provides a strategic framework for the development of the livestock sector and the control of diseases that hinder its growth.

The epidemiology and transmission of *T. hydatigena* are influenced by environmental and climatic factors. Seasonal fluctuations in temperature, humidity, and other abiotic factors affect the survival and development of parasite eggs in the environment, as well as the interaction between definitive and intermediate hosts. Dogs, wolves, jackals, and other carnivorous animals serve as definitive hosts, while sheep, goats, and other ruminants act as intermediate hosts.



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The larval stage, *Cysticercus tenuicollis*, is commonly found on the omentum, mesentery, liver capsule, and serosal surfaces of abdominal organs. During the migratory phase, larvae may cause traumatic hepatitis, hemorrhages, inflammatory reactions, and allergic responses. Acute infections are characterized by fever, diarrhea, abdominal pain, weakness, and reduced feed intake. In chronic cases, infected animals often exhibit poor growth performance, weight loss, and anemia, resulting in decreased productivity.

According to Sivkova and Doronin-Dorgelensky (2018), the prevalence of *C. tenuicollis* infection in sheep was reported to be 26.0% in Eastern Ethiopia, 20.5% in Western Australia, and 23.0% in Saudi Arabia. Furthermore, Oripov, Davlatov, and Yuldoshev (2016) reported that the prevalence of *Taenia hydatigena* infection in sheep and goats in Uzbekistan reached 70.0–80.0%, highlighting the widespread distribution of the parasite and the necessity of implementing effective control measures.

Therefore, the development and evaluation of effective anthelmintic preparations against *T. hydatigena* in dogs, the definitive host of the parasite, are of great scientific and practical importance for reducing the prevalence of cysticercosis (*Cysticercus tenuicollis*) in livestock and minimizing the associated economic losses.

Taenia hydatigena is a cestode parasite whose larval stage is known as *Cysticercus tenuicollis*. The adult parasite inhabits the small intestine of dogs, wolves, jackals, and other carnivorous animals, which serve as its definitive hosts. It is a ribbon-shaped, segmented tapeworm that can reach up to 5 m in length and 7.5 mm in width.

The scolex of *T. hydatigena* bears four muscular suckers and a rostellum armed with 26–44 hooks of different sizes arranged in two rows. The scolex serves as an attachment organ, allowing the parasite to firmly adhere to the intestinal mucosa of the host.

Immediately behind the scolex is the neck region, which functions as the growth zone of the parasite. New proglottids are continuously formed from this region, gradually developing into a chain of segments known as the strobila. Each proglottid contains a complete set of organ systems, including male and female reproductive organs.

In mature proglottids, the genital pores are clearly visible and alternate irregularly along the lateral margins of the segments. In gravid proglottids, the uterus consists of a central longitudinal trunk with 20–25 lateral branches on each side, containing numerous eggs. These morphological characteristics are important diagnostic features for the identification of *T. hydatigena*.

Biology of the Causative Agent. Adult *Taenia hydatigena* tapeworms release gravid proglottids containing thousands of eggs into the environment through the feces of infected definitive hosts. In some cases, the proglottids rupture within the intestine, and the eggs are excreted directly with the feces. Once expelled, the gravid proglottids may actively migrate and subsequently disintegrate, dispersing parasite eggs into the external environment.

Sheep and other intermediate hosts become infected by ingesting feed or drinking water contaminated with *T. hydatigena* eggs or gravid proglottids. After entering the

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gastrointestinal tract, the oncospheres hatch from the eggs, penetrate the intestinal mucosa, and enter the blood and lymphatic vessels. They are then carried via the circulatory system to various organs and tissues, particularly the liver, omentum, mesentery, and serosal surfaces of the abdominal cavity.

During migration through the liver parenchyma, the larvae may cause traumatic lesions and inflammatory reactions. Subsequently, they settle on the peritoneal surfaces and develop into the larval stage, *Cysticercus tenuicollis*. The cysticerci reach full development approximately 2–3 months after infection.

Dogs, wolves, jackals, foxes, and other carnivores become infected by consuming raw or inadequately processed organs and tissues containing viable cysticerci. Following ingestion, the scolices evaginate and attach to the mucosa of the small intestine, where they develop into sexually mature adult tapeworms within approximately 3–3.5 months. Adult *T. hydatigena* can survive in the intestine of definitive hosts for several years, continuously shedding eggs and maintaining the transmission cycle of the parasite.

Aim of the Study. The aim of this study was to investigate the epizootiological status of *Cysticercus tenuicollis*, one of the major cestodoses affecting sheep in livestock farms specializing in sheep breeding in the Republic of Uzbekistan. In addition, the study focused on evaluating and testing new anthelmintic preparations for the deworming of dogs, which serve as the definitive hosts of the parasite, in order to prevent and control the spread of the infection.

Materials and Methods. The study was conducted at the experimental animal facility and the necropsy room of the “Helminth Zoonoses” Laboratory of the Veterinary Research Institute. The investigations were carried out using the incomplete helminthological dissection method developed by K.I. Skrjabin. This method allowed for the detection, collection, and identification of helminths in infected organs and tissues under laboratory conditions.

Results of the Study. Since dogs play a continuous role in the transmission of various parasitic diseases among farm animals, regular deworming is considered one of the most important and effective measures in the control of cestodoses. During our study, the anthelmintic efficacy of the preparation “Fenpraz Forte,” produced in the Russian Federation, was evaluated under experimental conditions for the deworming of dogs.

The experiments were conducted on three dogs kept at the experimental facility of the “Helminth Zoonoses” Laboratory, which had been experimentally infected with cysticercal cysts. The animals were housed individually in separate cages within the laboratory’s experimental area and divided into three groups.

“Fenpraz Forte” is a combination anthelmintic preparation containing, in one tablet, fenbendazole (120 mg), pyrantel pamoate (120 mg), praziquantel (40 mg), and ivermectin (0.048 mg). The drug was administered at a dosage of one tablet per 8 kg of body weight (Table 1).

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Table 1.

Administration of “Fenpraz Forte” against *Taenia hydatigena* infection in dogs

No.	Coat color	Age (years)	Sex	Body weight (kg)	Anthelmintic dose administered	Anthelmintic drug
1	Grey	4	Male	16	2 tablets	Fenpraz Forte
2	Yellow	1	Male	23	3 tablets	Fenpraz Forte
3	Brown	4	Female	15	2 tablets	Fenpraz Forte

During the study, the anthelmintic drug was administered to the experimental dogs based on their body weight. Specifically, dogs with a body weight of 16 kg received 2 (two) tablets, the dog weighing 23 kg received 3 (three) tablets, and the dog weighing 15 kg also received 2 (two) tablets of the preparation.

After administration of the anthelmintic drug, fecal samples from the experimental dogs were subjected to helminthocoprolological examination within 72 hours. The results of the investigations are presented in the table below (Table 2).

Table 2.

Results of helminthocoprolological examination of fecal samples from dogs after administration of Fenpraz Forte against *Taenia hydatigena*

No.	Coat color	Age (years)	Sex	Body weight (kg)	Anthelmintic dose administered (tablets)	Examination results (<i>T. hydatigena</i> specimens)
1	Grey	4	Male	16	2	3 specimens
2	Yellow	1	Male	23	3	3 specimens
3	Brown	4	Female	15	2	2 specimens

Following experimental infection of dogs with *Taenia hydatigena* and subsequent administration of the anthelmintic drug “Fenpraz Forte,” fecal samples were examined. In one dog, 2 parasite specimens were detected, while in the feces of two dogs, 3 specimens each were recorded.

After coprolological examination of fecal samples, a final diagnosis was confirmed through post-mortem examination of the small intestine at the necropsy room of the “Helminth Zoonoses” Laboratory using the incomplete helminthological dissection method developed by K.I. Skrjabin. During the examination of the small intestines, one scolex of *T. hydatigena* was recovered from one dog, whereas no parasites were detected in the intestines of the remaining two dogs.

Based on the obtained results, the efficacy of the “Fenpraz Forte” anthelmintic preparation was determined to be 95.0%.

Conclusions

1. The obtained results demonstrated that *Taenia hydatigena* infection remains an important parasitic problem in dogs, confirming their role as definitive hosts in the

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maintenance and dissemination of cysticercosis (*Cysticercus tenuicollis*) in livestock farms.

2. The anthelmintic preparation “Fenpraz Forte” showed a high level of therapeutic activity under experimental conditions, leading to a significant reduction in parasite burden, as evidenced by coprological and post-mortem examinations of the small intestine.

3. The overall efficacy of “Fenpraz Forte” was determined to be 95.0%, indicating that the drug can be recommended as an effective anthelmintic agent for the control of *Taenia hydatigena* infection in dogs and for the prevention of its transmission to intermediate hosts.

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