



EFFICACY OF TRIPONIL IN THE TREATMENT OF CATTLE THEILERIOSIS IN THE CONDITIONS OF THE REPUBLIC OF KARAKALPAKSTAN

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Abstract

The study investigates the efficacy of the Triponil drug in experimental and spontaneous theileriosis in cattle. The search for rapid and effective treatment methods is crucial for the prevention and treatment of various invasive diseases in cattle. This research examines the effectiveness of Triponil against theileriosis in cattle under the conditions of the Republic of Karakalpakstan. Based on experimental studies and practical observations, different doses of Triponil demonstrated high efficiency in rapidly eliminating disease symptoms and reducing parasite levels in cattle. The drug, administered at a dose of 7.0 ml, achieved significant effectiveness within 24 hours. The results of this study suggest that Triponil can be recommended as an effective treatment for theileriosis.

Keywords: Cattle, dose, blood smear, Ixodid tick, parasitic reaction, Tryponil, symptomatic treatment.

Relevance of the Topic

At present, large-scale reforms and scientific research are being conducted in our country within the framework of state programs aimed at developing livestock farming, including cattle breeding. These efforts focus on ensuring sufficient and high-quality feed for livestock, implementing advanced technologies for their maintenance and feeding, and increasing the number of high-yield cattle breeds. As a result of these initiatives, significant achievements have been made. As a continuation of the Decree on the Action Strategy for Further Development of the Republic of Uzbekistan, the Decree No. PF-60 of January 28, 2022, on the Development Strategy of New





Uzbekistan for 2022–2026 outlines key priorities in the agricultural sector. These include the rapid development of livestock farming, particularly cattle breeding, the protection of livestock health, the production of environmentally friendly products, and the improvement of veterinary services.

The decree also emphasizes the development of the cattle breeding sector, ensuring a stable supply of meat and dairy products in the domestic market, and increasing the competitiveness of livestock products in both domestic and international markets. Furthermore, it highlights the importance of state support for livestock farming and its various branches, the creation and introduction of highly productive, disease- and pest-resistant animal breeds adapted to local soil, climate, and ecological conditions, as well as the expansion of scientific research in these areas.

Additionally, the decree underscores the need for the effective integration of modern information and communication technologies, along with advancements in science, into the livestock sector to enhance efficiency and sustainability.

The study of prevalent livestock diseases that cause substantial economic losses, particularly blood-parasitic infections in cattle, is of great importance. Addressing these diseases requires comprehensive research on their causative agents, the development of effective control measures, the search for preventive solutions, and the advancement of diagnostic methods, therapeutic approaches, and specific chemical prophylaxis.

For the treatment of cattle affected by theileriosis, the use of various chemotherapeutic agents has been recommended [6,7,8].

Extensive research has been conducted on the treatment and prevention of blood-parasitic diseases in cattle, focusing on the effectiveness of locally sourced raw material-based drugs against bovine piroplasmiasis. Studies have demonstrated positive outcomes in both treatment and prevention [3,4,5,9].

Research Objective. This study aims to investigate the therapeutic properties of the antiprotozoal drug Triponil, manufactured in the Netherlands (Interchemie), in the treatment of bovine theileriosis. The research focuses on evaluating its effectiveness through experimental trials and in spontaneously infected cattle in the Republic of Karakalpakstan, where the disease is widespread and causes significant economic losses.



Research Materials and Methods

Scientific research experiments were conducted at the Islambek-Zaynab farm in Khujayli district and among privately owned cattle to evaluate the effectiveness of the Triponil drug in the treatment of bovine theileriosis.

The diagnosis of theileriosis was established by preparing blood smears from peripheral blood vessels, which were then stained using the **Romanowsky-Giemsa** method for microscopic examination.

The **Triponil** drug, manufactured in the Netherlands (Interchemie), is recommended for the treatment of bovine piroplasmiasis at a dosage of **5.0 ml per 100 kg of live weight**.

Evaluation of Triponil's Effectiveness in the Treatment of Experimental Theileriosis A study was conducted to assess the therapeutic efficacy of Triponil in treating experimentally induced theileriosis in cattle. The experiment involved nine cattle, which were divided into three groups, each consisting of three animals. To induce infection, all cattle were subcutaneously injected with 10 ml of blood obtained from a cow naturally infected with *Theileria*.

Throughout the study, various clinical parameters were closely monitored, including body temperature, regional lymph node enlargement, overall health condition, mucous membrane appearance, and parasitic presence in peripheral blood smears.

By days 19–21 post-infection, the infected cattle exhibited a body temperature increase to 40.6–40.8°C, significant enlargement of external lymph nodes (3–4 times their normal size), reduced rumination activity, anemia, and *Theileria* parasitemia ranging from 10% to 14% in blood smears.

To evaluate the effectiveness of Triponil, the cattle were divided into three groups. First group administered 5.0 ml of Triponil per 100 kg of body weight via intramuscular injection. Second group administered 7.0 ml of Triponil per 100 kg of body weight via intramuscular injection. Third group received no treatment. Throughout the study, daily clinical and parasitological assessments were conducted on all cattle, including both treated and control groups, to monitor health conditions and treatment efficacy.

Experiments to determine the effectiveness of Triponil in treating spontaneously infected cattle with theileriosis were conducted on six naturally infected cattle at the Islambek-Zaynab farm in Khojayli district. The experimental cattle were divided into two groups with three animals in each group. In the first group, clinical signs of theileriosis had not fully developed, and the animals showed minimal clinical changes. Their body temperatures ranged from 40.4 to 40.5°C, and parasitological analysis revealed that 3 to 4 percent of erythrocytes were infected with *Theileria* parasites. In



the second group, the general condition of the cattle had worsened significantly, with body temperatures rising to 40.9 to 41.7°C. Parasitological examination of peripheral blood smears showed that up to 20 percent of erythrocytes were infected with *Theileria* parasites.

Following this, the cattle in the first group were administered Tryponil at a dose of 5.0 ml per 100 kg of body weight, while the cattle in the second group received 7.0 ml per 100 kg of body weight via intramuscular injection. Clinical and parasitological examinations were conducted daily on the experimental animals.

To enhance the effectiveness of the drug in treating theileriosis in both the experimental and spontaneously infected cattle, additional supportive therapy was applied. Ascorbic acid was administered intravenously at a dose of 0.3 ml per 10 kg of body weight, 20% caffeine solution was injected subcutaneously at 10 ml, and vitamin B12 was given intramuscularly at 500 mg. To improve digestive function, hellebore tincture was administered orally at a dose of 10 ml diluted in water.

Results and Analysis

During the experiment, a total of 60 blood smears were prepared and examined from both the experimental and spontaneously infected animals.

Clinical and parasitological examinations revealed that in the first group of cattle, 24 hours after treatment with Tryponil, the percentage of erythrocytes infected with *Theileria* was observed to be 5-6%. In the second group, where Tryponil was administered at a dose of 7.0 ml per 100 kg of body weight, better results were noted compared to the first group. The body temperature decreased to 40.2-40.4°C, and the percentage of infected erythrocytes was reduced to 2-3%.

In contrast, in the third (control) group, an increase in body temperature and the progressive development of clinical signs of theileriosis were observed (Table 1). The effectiveness of the Tryponil treatment was determined to be 100%.



Table 1 Effectiveness of Tryponil in the Treatment of Experimental Theileriosis

Indicator	Groups		
	1st Experiment	2nd Experiment	Control
Number of cattle in the group	3	3	3
Triponil dosage (ml)	5,0	7,0	-
Administration period (days)	1	1	-
Number of animals subjected to compulsory slaughter	1		2
Number of animals that died from the disease	0		1
Number of recovered animals	2	3	
Efficacy of the drug (%)	66.7	100	-

Thus, the conducted research determined that the effectiveness of the Tryponil drug, administered at a dosage of 5 ml per 100 kg of live weight for the treatment of theileriosis in cattle, was relatively low at 66.7%.

Table 2 Effectiveness of Tryponil in the Treatment of Spontaneous Theileriosis

Group	Number of Cattle	Method of Drug Administration	Effectiveness
1	3	During the development of clinical signs and parasitic reaction of theileriosis, Tryponil was administered intramuscularly at a dosage of 5 ml per 100 kg of live weight.	66.7%
2	3	During the incubation period of theileriosis or at the onset of clinical symptoms, Tryponil was administered intramuscularly at a dosage of 7 ml per 100 kg of live weight.	100%



Thus, the effectiveness of Tryponil administered at a dosage of 5.0 ml per 100 kg of live weight in the treatment of spontaneous theileriosis with developed clinical symptoms and a high level of parasitic reaction was found to be low. However, when Tryponil was applied at a dosage of 7.0 ml per 100 kg of live weight during the incubation period of the disease, its effectiveness was determined to be 100%.

The carriers of the causative agent of theileriosis in cattle are *Hyalomma anatolicum* and *Hyalomma detritum* ticks. The spread of the disease depends on the activity and population size of these ixodid ticks.

Theileriosis is a widespread disease in the Republic, causing significant economic losses in the livestock sector due to the mortality of young animals and the reduced productivity of adult cattle. The findings indicate that when Triponil was administered at a dose of 7 ml per 100 kg body weight during the latent phase of the disease or at the onset of clinical symptoms in experimentally and spontaneously infected cattle, the animals' overall condition improved, their body temperature stabilized at 40.2–40.4°C, and parasitemia was observed in 2–3 instances per 200 microscope fields. The study confirmed that the effectiveness of Triponil in treating theileriosis in cattle is significantly higher when treatment begins at the early manifestation of clinical symptoms.

Conclusion

Observations and experiments have confirmed the effectiveness of Triponil in treating bovine theileriosis under the conditions of the Republic of Karakalpakstan. The drug demonstrated high efficacy when administered at doses of 5.0 ml and 7.0 ml per 100 kg of body weight in experimentally and spontaneously infected cattle. At a dose of 7.0 ml, Triponil significantly reduced body temperature and parasitic reaction within 24 hours. In experimental cases, the drug achieved 100% effectiveness, preventing disease progression and rapidly eliminating clinical symptoms. These results indicate that Triponil is an effective treatment for theileriosis, with optimal outcomes achieved when administered in the early stages of the disease. Additionally, combining the drug with symptomatic therapy enhances its therapeutic efficacy.

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