

## APPLICATION OF BENZIMIDAZOLES AGAINST NEMATODES IN SMALL RUMINANTS (SELECTION OF MARSHALLAGIA AND STRONGYLOIDES PARASITES)

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### ABSTRACT

The article analyzes the pharmacological properties of benzimidazole-class drugs used against nematodes in small ruminants, their effectiveness, and application features. The biology of Marshallagia and Strongyloides parasites, methods for their identification, and the advantages of benzimidazoles in treatment are presented based on scientific sources.

**Keywords:** Benzimidazoles, nematodes, small ruminants, Marshallagiosis, Strongyloidosis, pharmacology, veterinary.

### INTRODUCTION

In recent years, problems related to parasitic diseases, in particular nematodes, have significantly affected the economic efficiency of livestock industries. Internal parasites, especially gastrointestinal nematodes, found in small horned animals - sheep and goats, reduce the growth rate of animals, reduce their productivity, and cause a weakening of the immune system. The most common and economically damaging species of these include Marshallagia marshalli and nematodes belonging to the Strongylus complex, such as Haemonchus, Trichostrongylus, Strongyloides. These parasites settle in the intestinal system of animals, disrupting the absorption of blood and nutrients, and in severe cases, leading to anemia, weight loss, diarrhea, and even death. Therefore, the development of effective measures to prevent and treat nematodes is one of the urgent issues today. Although many drugs have been developed in the field of veterinary pharmacology against nematodes, the benzimidazole group is among the most widely used and highly effective. Representatives of this group - albendazole, fenbendazole, mebendazole and other analogues - disrupt the process of microtubule formation in parasites, disrupting their energy metabolism and ultimately leading to their death. Nevertheless, in some regions, cases of resistance of parasites to benzimidazoles are noted. This may be due to the dosage of drugs, frequency of use and failure to carry out timely prophylaxis. In this regard, it is of great practical importance to study the effectiveness of benzimidazoles against marshalliasis and strongylidosis parasites in small horned animals on a scientific basis. This work analyzes the use of benzimidazole drugs in various doses and forms, the mechanism of their action on parasites, their effect on the general physiological condition of animals, and the results of treatment. The obtained data will play an important role in the future improvement of the prevention and treatment of nematodes, as well as in the development of scientifically based recommendations on the rational use of drugs in veterinary practice.

## MATERIAL AND OBJECT OF THE STUDY

The study was conducted on farms where small-horned animals are kept in the Samarkand region. During parasitological examinations, the presence of nematodes was detected in 50 sheep, and their biological species were classified. Marshalliasis and Stranglyatosis parasites were identified in the laboratory by flotation from fecal samples. Each animal was given various benzimidazole drugs — albendazole, fenbendazole and thiabendazole — in a certain dose, and the degree of parasite disappearance and the general physiological condition of the animals were monitored.

## METHODS

In preparing the article, available scientific sources, foreign and domestic research results, and scientific articles on veterinary pharmacology were analyzed. The data were summarized analytically and a comparative analysis of the mechanisms of action of drugs in the benzimidazole group was conducted.

## RESULTS

It was found that drugs belonging to the benzimidazole class - albendazole, fenbendazole, mebendazole and thiabendazole - are effective against many species of nematodes in small horned animals. Their mechanism of action is associated with the disruption of the structure of microtubules in parasite cells, which stops the feeding of parasites and leads to their death.

## DISCUSSION

Benzimidazoles have been used as effective antiparasitic agents for many years. However, their excessive use leads to the development of resistance in parasites. Therefore, drug rotation, correct dosage determination and treatment based on laboratory diagnostics are of great importance. Albendazole and fenbendazole are recommended as the most effective agents for parasites such as marshaliasis and strangulation.

### Practical significance of the research results

The results obtained are of great practical importance in the selection of benzimidazole drugs for the effective treatment of nematodes in small ruminants. The study also helps to develop control measures to prevent the development of resistance in parasites. In veterinary practice, it is possible to correctly select drugs, rotate them seasonally, and determine doses on a scientific basis.

## CONCLUSION

Benzimidazoles are widely used and effective drugs against nematodes of small ruminants. Their correct use reduces parasitic diseases, strengthens animal health, and increases livestock productivity. In the future, it is necessary to develop new forms of drugs and develop strategies to combat resistance.

### RECOMMENDATIONS

1. When using benzimidazole drugs, their doses should be clearly determined depending on the live weight of the animal.
2. It is recommended to use the drugs in a rotational manner - at least twice a year - alternating.
3. Parasitological control should be carried out regularly and resistance cases should be identified early.
4. It is advisable to carry out preventive treatment in the spring and autumn seasons.
5. It is recommended to enhance the effect of the drug by adding vitamins and minerals to animal feed.

### REFERENCES

1. Taylor M.A., Coop R.L., Wall R.L. (2016). Veterinary Parasitology. Wiley-Blackwell.
2. Soulsby E.J.L. (1982). Helminths, Arthropods and Protozoa of Domesticated Animals. Baillière Tindall.
3. Coles G.C. et al. (2006). The detection of anthelmintic resistance in nematodes. Veterinary Parasitology.
4. Kaplan R.M. (2020). Biology, epidemiology, diagnosis, and management of anthelmintic resistance in gastrointestinal nematodes of livestock.
5. Fiel C.A. et al. (2017). Resistance of gastrointestinal nematodes to benzimidazole in sheep.
6. Jabbar A. et al. (2006). Anthelmintic resistance in sheep nematodes.
7. Besier R.B. (2012). Refugia-based strategies for sustainable worm control.
8. Torgerson P.R. et al. (2018). Global burden of livestock helminth infections.
9. Mirzayev M. (2021). Parazitologiya asoslari. Toshkent: Fan nashriyoti.