
THE THERAPEUTIC MANAGEMENT OF PARASITIC DISEASES IN GOATS

Maria CRIVINEANU, Ionuț Răzvan DOBRE, Diana Mihaela ALEXANDRU
University of Agronomic Sciences and Veterinary Medicine of Bucharest,
59 Mărăști Boulevard, District 1, Bucharest
maria_crivineanu@yahoo.com

Abstract

Parasitic diseases occupy a major place in goat farms, antiparasitic preparations are numerous, with different efficacy and costs, and if the cost is too high it becomes an inconvenience for goat breeders. The aim of this study was to know the main parasitoses that can be encountered in a goat farm as well as to test the efficacy of the antiparasitic preparations used, depending on the active substance contained, the doses used and the route of administration. This study was conducted on goats with different breed: Saanen, French Alpine, Alba de Banat and Carpatina. From each age and sex category we chose 10 animals from which we harvested the necessary samples and whose treatment was monitored up to the final results. The groups have been numbered as follows: females-group 1, males-group 2, kids-group 3. The crust harvesting was performed depending on the suspected acariosis: for psoroptic mites, the scraping was superficial and from the edge of the lesions; for sarcoptic mites, deep scraping was performed, mites were found in the deep layers of the epidermis; to identify Demodex spp. it was necessary deep scraping, these mites being located at the base of the hair follicle and sebaceous glands; for the detection of pulmonary strongyles a larvhelminthoscopic method was used; for the detection of heavy trematode eggs the centrifugation method was used. Following the examinations, we initiated the treatment for gastrointestinal strongylosis, eimeriosis and scabies using Evomec (ivermectin), Ascacid (albendazole), Sulfaquinoxaline and Diazinol (diazinon). Mild infestations with gastrointestinal Strongyles in adults (100%), mild infestations with Scabies mites (3.3%) and massive infestations with Eimeria spp. in youngsters (100%) were encountered in the study. The therapy resulted in the insignificant elimination of the strongyl eggs, the total elimination of the mites and the elimination of less than half of the oocysts of Eimeria spp. In addition to deworming, prevention must be done, prophylaxis being achieved by maintaining farm hygiene, providing natural lighting, quality feed, avoiding weaning stress and restricting access of other species in accommodation.

Keywords: goats, parasitic diseases, therapy

Introduction

It is known that goat farms have grown in recent years, with more and more breeders opening farms of different types and sizes, exploiting a growing variety of goat breeds, both locally and imported[3, 8].

Parasitic diseases occupy a major place in goat farms, antiparasitic preparations are numerous, with different efficacy and costs, and if the cost is too high it becomes an inconvenience for goat breeders[7].

The aim of this study was to know the main parasitoses that can be encountered in a goat farm as well as to test the efficacy of the antiparasitic preparations used, depending on the active substance contained, the doses used and the route of administration. At the same time, it was intended to optimize the approach of antiparasitic therapy in a goat farm depending on the parasitic diseases encountered[5, 6].

Materials and methods

This study was conducted on goats with different breeds, like Saanen, French Alpine, Alba de Banat and Carpatina. From each age and sex category we chose 10 animals from which we harvested the necessary samples and whose treatment was monitored up to the final results. The groups have been numbered as follows: females-group 1, males-group 2, kids-group 3. The goats had good maintenance, but half of the kids had diarrhea.

To identify gastrointestinal strongyle eggs, samples of feces from adult animals, from groups 1 and 2 were collected. These samples were also used to highlight the pulmonary strongyles as well as the trematodes. In order to identify coccidia oocysts, samples from group 3 were collected[1, 4].

In order to reveal the presence of scabies mites, hair and cutaneous samples were harvested from the animals in the study groups witch presented pruritus and hyperkeratosis.

To identify gastrointestinal Strongyles and *Eimeria* oocysts, the coproparasitologic examination was performed by the Willis method[2]. For the detection of the mites, the microscopic examination of the skin scrapings and superficial crusts was performed[9].

The crust harvesting was performed depending on the suspected acariosis:

- in the case of psoroptic mites, the scraping was superficial and from the edge of the lesions;
- in the case of sarcoptic mites, deep scraping was performed, mites were found in the deep layers of the epidermis;
- to identify *Demodex spp.* it was necessary deep scraping, these mites being located at the base of the hair follicle and sebaceous glands;
- for the detection of pulmonary strongyles a larvhelminthoscopic method was used, namely the Vajda method;
- for the detection of heavy trematode eggs the centrifugation method was used.

Results and discussions

Following the microscopic examination of the preparations from the feces samples from group 1 and 2, were observed Strongyles eggs in small quantities, all the samples were positive (Fig. 1 and 2).

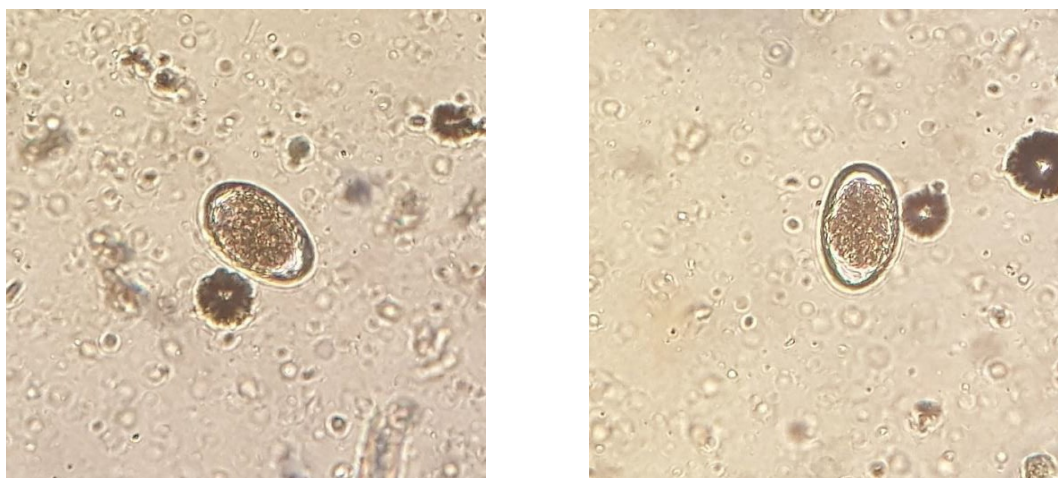


Figure 1 and 2 Strongyles eggs

Following the coproparasitological examination of the faeces collected from group 3, the presence of oocysts of *Eimeria spp.* was observed in a very large number, all samples being positive, as shown in Figures 3 and 4.

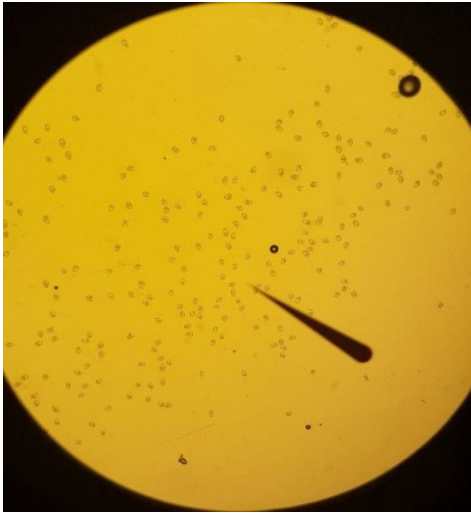


Figure 3 and 4 *Eimeria* spp, observed in a very large number

Following the parasitological examination of the skin, one of the samples was positive for scabies (Figure 5). Samples for pulmonary strongyles and trematode were negative.

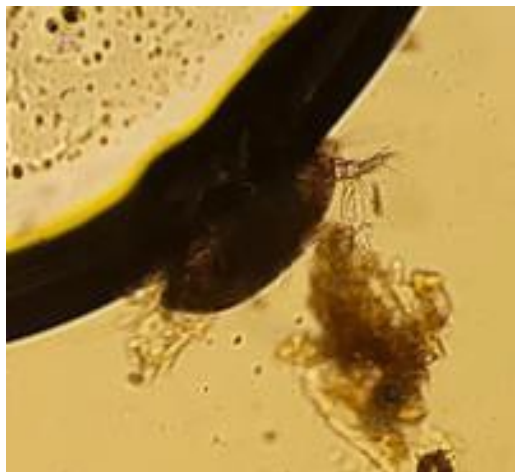


Figure 5 Positive sample - the presence of a mite

Following the examinations, we initiated the treatment for gastrointestinal strongylosis, eimeriosis and scabies using Evomec (ivermectin), Ascacid (albendazole), Sulfaquinoxaline and Diazinol (diazinon).

Goat farm deworming were made as follows:

- deworming against gastrointestinal strongylosis was performed before mating (2-3 weeks), 2 months before calving and during lactation only by necessity;
- against coccidiosis, kids were dewormed at one month's age;

- external solutions against parasites were used between may and june.

Evomec was administered at dose of 1.5 ml per animal subcutaneously and Ascacid at a dose of 20 ml per animal orally, in groups 1 and 2. After 10 days, the coproparasitological examination was repeated.

Against scabies were made sprays with DIAZINOL at dose of 20 ml/20 liters of water for the three batches and after 10 days the dermato-parazitologic examination was repeated. In order to combat coccidiosis, in group 3, SULFAQUINOXALINA was used in drinking water at a dose of 5 ml/ 4 liters of water, daily for one week, and after 10 days the coproparasitic examination was restored.

After the treatment, for groups 1 and 2, two samples went positive with infestation but insignificant (Fig. 6).



Figure 6 Strongyles eggs

After using Diazinol, the samples were negative with no scabies mites on any of the analyzed samples.

After 10 days from the end of the treatment for coccidiosis in kids, the samples continued to be positive, as can be seen in Figure 7.

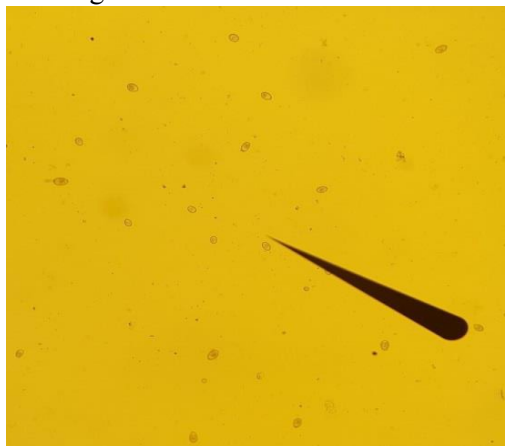


Figure 7 *Eimeria spp.*, positive sample after the treatment

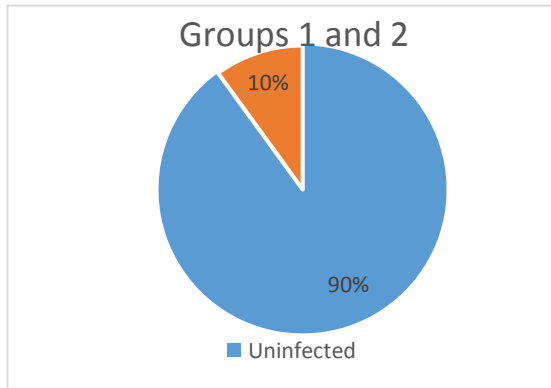


Figure 8 The percentage results after anthelmintics deworming in groups 1 and 2

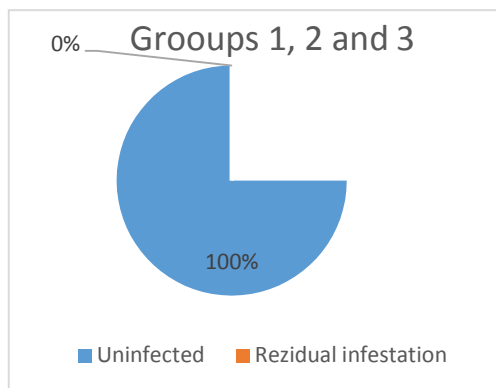


Figure 9 The percentage results after the treatment against scabies in groups 1, 2 and 3

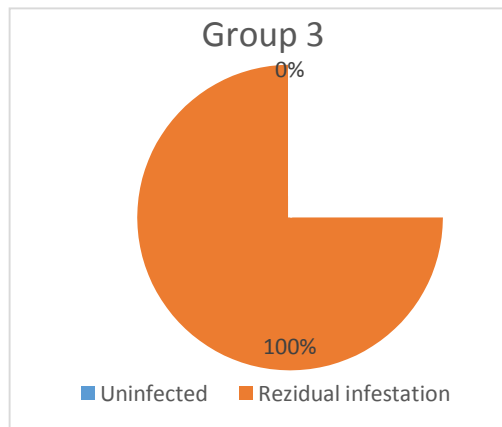


Figure 10 The percentage results after the treatment against coccidiosis in group 3

Conclusions

In this study, 30 animals were examined and divided into 3 groups (1,2 and 3). The information obtained from the clinical examination, laboratory examinations, deworming and post-therapeutic monitoring allowed the following conclusions to be drawn:

1. Mild infestations with gastrointestinal Strongyles in adults (100%), mild infestations with Scabies mites (3.3%) and massive infestations with *Eimeria spp.* in youngsters (100%) were encountered in the study.
2. The anthelmintic therapy consisted of administration of ivermectin and albendazole to adult populations and the results consisted in the elimination to insignificantly the strongyl eggs (10% residual infestation of the animals in groups 1 and 2)(Fig. 8).
3. The therapy against scabies mites consisted of diazinon sprays in all three lots, the results being represented by the total elimination of the mites (100%)(Fig. 9).
4. The therapy against coccidiosis was achieved by administering Sulfaquinoxaline to the kids group, the results being constituted by the elimination of less than half of the oocysts of *Eimeria spp* (100% residual infestation)(Fig. 10).
5. In addition to deworming, prevention must be done, prophylaxis being achieved by maintaining farm hygiene, providing natural lighting, quality feed, avoiding weaning stress and restricting access of other species in accommodation.

Bibliography

1. Amit M., Cohen I., Marcovics A., Muklada H., Glasser T.A., Ungar E.D, Landau S.Y. (2013), Self-medication with tannin-rich browse in goats infected with gastro-intestinal nematodes, *Veterinary Parasitology*, Vol 198 (3-4): 305-311;
2. Bates Peter (2012), *External Parasites of Small Ruminants A Practical Guide to their Prevention and control*, Editura CABI, USA;
3. Charlier J., Morgan E.R., Rinaldi L., J. van Dijk, Demeler J., Höglund J., Hertzberg H., B. Van Ranst, Hendrickx G., Vercruyse J., Kenyon F. (2014), Practices to optimise gastrointestinal nematode control on sheep, goat and cattle farms in Europe using targeted (selective) treatments, *Veterinary Record*, 250-255;
4. Chartier Christophe, Paraud Carine (2012), Coccidiosis due to *Eimeria* in sheep and goats, *Small ruminant research*, Vol 103: 84-92;
5. Codreanu Mario Darius (2018), *Terapeutică veterinară*, Editura Printech, București;
6. Crivineanu Maria, Nicorescu Valentin (2012), *Bazele farmacologiei veterinare*, Editura Printech, București;
7. Ioniță Mariana, Mitrea Ioan Liviu (2013), *Diagnosticul parazitozelor la animale*, Ghid de laborator Vol.1, Tehnici și metode de diagnostic parazitologic – Diagnosticul protozozelor, Editura Ceres, București;
8. Simoes Joao, Gutierrez Carlos (2017), *Sustainable goat production in adverse environments: volume 1, Welfare, health and breeding*, Editura Springer, USA;
9. www.mississippivet.ca