

Helminth Parasites in Horses from Five Locations of Arad County

Sorin Morariu, Ion Opreescu, Narcisa Mederle, Marius Ilie, Gheorghe Dărăbuș

Faculty of Veterinary Medicine, 300645-Timișoara, 119 Calea Aradului, Romania

Abstract

The paper describes the prevalence of helminth species in horses from five localities of Arad County, western Romania: Vinga, Pecica, Arad, Șiria and Lipova. A total of 56 horses (5 foals, 10 yearlings and 41 adults) were sampled in order to establish the parasite spectrum. Faecal samples were processed by McMaster technique. All horses (100%) were parasitized, and five types of helminthes were identified. Digestive strongyles were found in 73.21% of horses, roundworms (*Parascaris equorum*) in 28.57%, threadworms (*Strongyloides westeri*) in 8.92%, pinworms (*Oxyuris equi*) in 12.50%, and tapeworms (*Anoplocephala spp.*) in 19.64%, respectively. At least two helminth species were found in each individual.

Keywords: Arad County, helminths, horses.

1. Introduction

All over the world, horses are exposed to helminth parasites from many orders and genera resulting in significant morbidity and mortality [1-4].

Infections with intestinal nematodes, especially cyathostomes (Cyathostominae), are the most common parasitosis among horses [5-8].

Very important to understanding these infestations and their associated diseases is accurate identification of the parasites responsible.

Horses can harbour tens of thousands of these parasites, particularly cyathostomes, without developing clinical disease, but in some individuals, large numbers of inhibited mucosal larvae reactivate simultaneously causing a severe inflammatory colitis, associated with weight loss, diarrhoea and subcutaneous oedema and/or fever, leading to death. Various types of equine colic have also been attributed to the presence of large numbers of mucosal larvae and adult stages [9-11].

The aim of the study was to evaluate the composition of the helminth species in horses kept in the housed-pasture system.

2. Materials and methods

2.1. Farms and animals

Faecal samples were collected from 56 horses residing on 5 localities (Vinga, Pecica, Arad, Șiria and Lipova) within 35 km area of Arad city, western Romania (see Figure 1).

Inside this area 5 foals, 10 yearlings and 41 adult horses (18 mares and 23 geldings) were investigated. Horse ages ranged between 6 months and 24 years, with a mean of 12.5 years.

Information about horse herd management was solicited, including the number of anthelmintic treatments administered during 2011, and standard pasture hygiene practices.

2.2. Faecal samples

Fresh faecal samples were collected in plastic bags from individual horse immediately after defecation and labeled. Samples were collected between December 2011 and February 2012. A

* Corresponding author: Sorin Morariu,
+40256277190, +40256277118,
Email: sorin.morariu@fmvt.ro

total of 56 faecal samples were collected and analyzed. Sticky acetate tapes were also used to sample horses for *Oxyuris equi* infestation.

2.3. Faecal analysis

Faecal samples were analyzed quantitatively, using McMaster technique with a sensitivity of 50

eggs per gram (EPG) in the Parasitic Diseases Department laboratory of Faculty of Veterinary Medicine Timișoara. The last samples collected in February 2012 were analyzed by a modified McMaster procedure with a sensitivity of 15 EPG [12] (see Table 1).



Figure 1. Map of Arad County
Black circles show the localities where horses were sampled

Table 1. Coproscopic prevalence of various species of helminth parasites of horses from Arad County

| Location | UM | Strongyles | Roundworms | Threadworms | Tapeworms | Pinworms** |
|--------------------------|----------------------------|----------------------|---------------------|-----------------|---------------------|-----------------|
| Vinga 4 (n = 11) | No (%) [*] EPG | 7 1277.3 | 3 386.4 | 1 100 | 2 100 | 1 ++ |
| Pecica 4 (n = 12) | No (%) [*] EPG | 8 1429.2 | 4 445.8 | 1 150 | 2 100 | 2 ++ |
| Arad 2 (n = 10) | No (%) [*] EPG | 8 1205 | 2 405 | - - | 1 150 | 1 + |
| Șiria 2 (n = 11) | No (%) [*] EPG | 9 1804.5 | 3 631.8 | 1 150 | 3 116.6 | 1 +++ |
| Lipova 3 (n = 12) | No (%) [*] EPG | 9 2337.5 | 4 754.2 | 2 250 | 3 166.6 | 2 ++ |
| TOTAL (n = 56) | No (%) [*] EPG | 41 (73.21) 1610.7 | 16 (28.57) 524.6 | 5 (8.92) 130 | 11 (19.64) 126.2 | 7 (12.50) ++ |
| SD | | 467.57 | 161.10 | 90.82 | 30.26 | |
| <i>p</i> = | | | 0.0007 | 0.0005 | 0.0009 | |
| <i>r</i> = | | | 0.984185 | 0.8842 | 0.553708 | |

*at least 2 helminth species in some horses;

**identified on sticky acetate tapes;

p = probability;

r = Pearson coefficient.

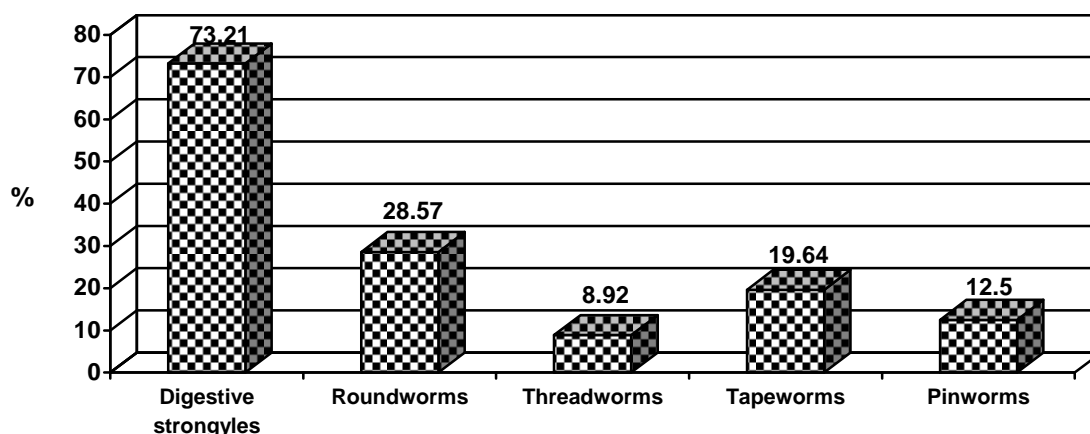


Figure 2. Prevalence of horse helminths in Arad County

3. Results and discussion

Results are shown in Table 1. An overall one hundred percent of sampled animals were found positive for various helminth species and statistical difference in the prevalence was observed ($p \leq 0.05$). Infections with multiple species were more frequently diagnosed as compared to single specie infections.

Digestive stongyles (especially cyathostomes) were the most prevalent parasite species (73.21%). Ascarid (*Parascaris equorum*) eggs were expelled by 16 horses (28.57%), and anoplocephalid (*Anoplocephala spp.*) oncospheres were identified in 11 horses (19.64%). Small number of animals was found excreting threadworm (*Strongyloides westeri*) eggs (8.92%) and pinworm (*Oxiuris equi*) eggs (12.5%), respectively (see Figure 2).

Horses from Lipova location were the most parasitized. They were followed by those from Şiria. The lowest parasite burden was registered in horses from northern Arad city. Here, no *Strongyloides westeri* infestation occurred.

Helminth infections are very common and morbidity and mortality represent a great health problem when horses carried large burdens of parasites.

Roundworm, threadworm and pinworm infestations were prevalent mainly in foals and yearlings, respectively.

Same greater proportions were found in another study carried out in 2009 by Francisco et al. [13]. In studies were deworming practices are performed regularly the infestation rates are low [14; 15].

Many studies carried out on cyathostomes have reported their widespread occurrence all over the

world under various management and climatic conditions [16; 17].

4. Conclusions

Horses from investigated locations of Arad County are intensely parasitized.

The digestive strongyles, mainly cyathostomes, are the most prevalent species.

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