Abstract

Studies conducted in August 2009 for testing anthelmintic effect of four herbal decoctions on strongyls infestation forms located on land plots artificially infested, revealed that at the decoction of Hippophae rhamnoides the efficacy was highest (86.66%), followed by anthelmintic composition (60%), which includes Thymus serpyllum, Arthemisia absinthium, Frangula Alnus, Gentiana lutea, Inula helenium, Matricaria chamomilla, Rosa canina. Action over strongyls exogenous forms has been reduced or even zero using Pimpinella anisium or Juglans nigra decoction. Strongyls most resistant species belonged to genus Cyathostomum, whose strength is great both for the environment and to the anthelmintic medication.

Key words: equine, phytotherapy, strongyls

INTRODUCTION

On pasture, for any horse, there are two sources of infested cyathostoma larvae: the L3 from the previous season surviving on grass and those that develop de novo in the egg, reached the pasture with faeces. Also, horses can infest with Strongyls larvae that survived during winter in the pasture. These larvae will not be too many, until the temperature is not optimal for their metabolism. Prevention and limiting equine exposure to infected larvae on pasture is possible and achievable through a pest control program that does not pollute the environment with anthelmintic substances.

MATERIALS AND METHODS

Studies were conducted in August 2009, in city Belis, Cluj county, and consisted of checking the degree of strongyls infestation (larvae per kg grass - LpKI) with the five parcels of land with area of one square meter each, and identify any strongyls larvae (day 0) (table 1). Later (day 1) was infested all plots with Strongyls eggs, applying a quantity of 500 g equine faeces, with an average level of 1200 EPG. After 24 hours (day 2), on four plots were sprayed grasses with 500ml of one phytotherapeutic aqueous extract, 25% concentration. Plot number 5 was sprayed with water only, being a control. After 14 days have been verified the degree of infestation, respectively the effectiveness of phyto-therapy by collecting grass and soil samples (100g/plot) and quantifying the number of strongyl infected larvae per kg of grass (LpKI).

RESULT AND DISCUSSIONS

Checking pre-therapeutic level of infestation parcels not revealed the presence of strongyls larvae, because of geographic isolation of marked plots and absence of horses in the last nine years on this field.

Plot no. 1 - anthelmintic decoction (Thymus serpyllum, Arthemisia absinthium, Frangula Alnus, Gentiana lutea, Inula helenium, Matricaria chamomilla, Rosa canina).

After 16 days from plot infestation was found that the number of infected larvae per kilogram of grass was 60. Larvae identified belonged to species Cyathostomum (83.34%) and Poteriostomum (16.66%). Compared with the control plot (no. 5), where we identified a number of 150 LpKI strongyls larva, for this anthelmintic decoction the efficacy was 60%, which shows reduced anthelmintic action of the extract (table 1).
Plot no. 2 - *Hippophae rhamnoides* decoction
On this plot, were identified only *Cyathostomum* species (100%), their number was the lowest compared with other groups. Thus, only 20 LpKI were quantify, which reveal the 86.66% efficacy against strongyls larvae compared with the control plot (table 1).

Plot no. 3 - *Juglans nigra* decoction
The plot of land treated with decoction of *Juglans nigra*, was found with the highest number of Strongyls larvae (170 LpKI), all belonging to the genus *Cyathostomum*, which shows total lack of efficacy of these extracts on exogenous forms of strongyls. This is highlighted by comparing the number of larvae obtained from control plots, which were identified and quantified only 150 LpKI (table 1).

Plot no. 4 - *Pimpinella anisium* decoction
On this plot, after 16 days of artificial infestation were identified larvae belong to the species *Cyathostomum* (87.50%) and *Strongylus vulgaris* (12.50%). It is noted that for the first time have identified evidence of *Strongylus vulgaris* larvae on grass, knowing that they have a lower resistance in the external environment [Cerne, 2007]. Was quantifying 80 LpKI on this plot was, which reveal an efficiency of only 46.67% of the *Pimpinella anisium* decoction against L3 of strongyls (table 1).

Working methodology and results obtaining by testing 4 herbal extracts on parcels of land artificial infested with eggs strongyls from horses

<table>
<thead>
<tr>
<th>Plot no.</th>
<th>Pharmaceutical formulation and composition</th>
<th>Degree of infestation (day 0) LpKI</th>
<th>Degree of infestation (14 days) LpKI</th>
<th>Identified species (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Decoction from: <em>Thymus serpyllum</em>, <em>Artemisia absinthium</em>, <em>Frangula albus</em>, <em>Gentiana lutea</em>, <em>Inula helenium</em>, <em>Matricaria chamomilla</em>, <em>Rosa canina</em>.</td>
<td>0</td>
<td>60</td>
<td><em>Cyathostomum</em> spp. (83.34%) <em>Poteriostomum</em> spp. (16.66%)</td>
</tr>
<tr>
<td>2</td>
<td>Decoction from <em>Hippophae rhamnoides</em></td>
<td>0</td>
<td>20</td>
<td><em>Cyathostomum</em> spp. (100%)</td>
</tr>
<tr>
<td>3</td>
<td>Decoction from <em>Juglans nigra</em></td>
<td>0</td>
<td>170</td>
<td><em>Cyathostomum</em> spp. (100%)</td>
</tr>
<tr>
<td>4</td>
<td>Decoction from <em>Pimpinella anisium</em></td>
<td>0</td>
<td>80</td>
<td><em>Cyathostomum</em> spp. (87.5%) <em>Strongylus vulgaris</em> (12.5%)</td>
</tr>
<tr>
<td>5</td>
<td>Control plot</td>
<td>0</td>
<td>150</td>
<td><em>Cyathostomum</em> spp. (86.68%) <em>Strongylus vulgaris</em> (6.66%) <em>Poteriostomum</em> spp. (6.66%)</td>
</tr>
</tbody>
</table>
The total number of larvae per kilogram of grass on control plots was 150. Was identified species belonging to the genus *Cyathostomum* (86.68%), *Poteriostomum* (6.66%) and *Strongylus vulgaris* (6.66%).

The results of this experiment reveal that the decoction of *Hippophae rhamnoides* has the highest efficiency (86.66%), followed by anthelmintic (60%), the composition of which includes *Thymus serpyllum*, *Artemisia absinthium*, *Frangula Alnus*, *Gentiana lutea*, *Inula helenium*, *Matricaria chamomilla* and *Rosa canina*. Action on exogenous strongyls forms has been reduced or even zero at Juglans nigra and *Pimpinella anisium* decoction. However, it appears that most resistant strongyls species belonging to the genus Cyathostomum, whose strength is well known worldwide [Dorny et al., 2000; Monahan, 2000; Lloyd et al., 2000; Kaplan 2002; Tandon and Kaplan, 2004, Cernea, 2007].

**CONCLUSIONS**

Studies conducted in August 2009 for testing anthelmintic effect of four herbal decoctions on strongyls infestation forms located on land plots artificially infested, revealed that:

1. With the decoction of *Hippophae rhamnoides* the efficacy was highest (86.66%), followed by anthelmintic composition (60%), which includes *Thymus serpyllum*, *Artemisia absinthium*, *Frangula Alnus*, *Gentiana lutea*, *Inula helenium*, *Matricaria chamomilla* and *Rosa canina*. Action over strongyls exogenous forms has been reduced or even zero using *Pimpinella anisium* or *Juglans nigra* decoction.
2. Strongyls most resistant species belonged to genus *Cyathostomum*, whose strength is great both for the environment and to the anthelmintic medication.

**REFERENCES**

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