IXODIDAE (Acari) ON HORSES, MULES ANDasses IN THE STATE OF PARANÁ, BRAZIL

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SUMMARY: Tick infestations on horses, mules and asses throughout the State of Paraná, Brazil, were analyzed according to their distribution in relation to the geographical regions: the localization of parasites on hosts was also studied.

UNTERMORS: Equines*; Ixodidae*; Ticks*

INTRODUCTION

Ticks are important ectoparasites of domestic animals. Those observed in equines are taxonomically well known in the Southern States of Brazil. Extensive revisions have been published: ARAGÃO 1 (1936), ARAGÃO and FONSECA 2 (1961), FALCE 3 (1982), FREIRE 4,5 (1958, 1972) and RIBEIRO 7 (1965) concerning them. However, little is known about their ecology. Therefore, tick infestation on horses, mules and asses throughout the State of Paraná were analyzed according to their geographic distribution; the localization of parasites on hosts was also studied.

MATERIAL AND METHODS

Ticks (all developmental stages) were collected from 904 animals used in farm work: 814 horses, Equus caballus; 84 mules, E. caballus x E. asinus; and, 6 asses, E. asinus; these animals were poorly treated and belonged to different regions of Paraná State (Fig. 1) and had never received tickcides.

The parasites were preserved in 70% ethanol for further examination under stereoscope in laboratory.

Ticks were taken from hosts in different regions in the State of Paraná (Fig. 1); these regions are characterized in Tab. 1, according to MAACK 6 (1968).

RESULTS AND DISCUSSION

Results show that 50.3% of the horses, 27.3% of the mules and 16.7% of the asses were founded with ticks.

A total of 4076 ticks were collected (January through May 1979) and identified as: Anocentor nitens (Neumann, 1897 51.6%); Boophilus microplus (Canestrini, 1887 44%) and Amblyomma cajennense (Fabricius, 1787 4.4%). These findings are in partial agreement with those of RIBEIRO 7 (1965) who also reported Rhipicephalus sanguineus (Latreille, 1828) in horses in the State of Paraná. However, no ticks of this species were now collected.

The relative distribution of ticks according to their species and regions is given in Tab. 1. Thus, Boophilus microplus was widely found in the 5 regions being the second species in abundance; Anocentor nitens, the most abundant species, was absent in region 1, the coastal plain, where Amblyomma cajennense, the less frequent, was also absent.

This large distribution of B. microplus throughout the State of Paraná emphasizes the necessity of including the equines in the control for B. microplus. Furthermore untreated equines, sharing this environment with another animals might be a potential source of infestation, contributing to reduce the efficiency of tick control measures.

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This large distribution of B. microplus throughout the State of Paraná emphasizes the necessity of including the equines in the control for B. microplus. Furthermore untreated equines, sharing this environment with another animals might be a potential source of infestation, contributing to reduce the efficiency of tick control measures.
The relative distribution of the ticks to their preferred attachment site is presented in Tab. 2. 

*Amblyomma cajennense* was found in all parts of the regions host's body; the preferred site of attachment for *Anocentor nitens* was inside the ears, although this species was found over the entire body of the host. *Boophilus microplus* exhibited a slight preference for attachment on the armpits and inguinal regions and was less frequent inside the ears.

**FIGURE 1** — Localization of the State of Paraná in Brazil, and its regions.
### TABLE 1 – Caracterization of Paraná State regions, Brazil, according to altitude (m), temperature (°C), pluviometric index (mm) and ticks species in equines.

<table>
<thead>
<tr>
<th>Regions</th>
<th>Altitude (m)</th>
<th>Temperature °C</th>
<th>Anual rainfall (mm)</th>
<th>Total no. ticks</th>
<th>Anocentor nitens No. %</th>
<th>Boophilus microplus No. %</th>
<th>Amblyomma cajennense No. %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>mean annual</td>
<td>Max.</td>
<td>Min.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Coastal plain</td>
<td>0 - 20</td>
<td>21.1</td>
<td>32.2</td>
<td>10.7</td>
<td>1976.4</td>
<td>148</td>
<td>148</td>
</tr>
<tr>
<td>2. First plateau</td>
<td>780 - 945</td>
<td>16.5</td>
<td>29.6</td>
<td>2.8</td>
<td>1451.8</td>
<td>1047</td>
<td>421</td>
</tr>
<tr>
<td>3. Second plateau</td>
<td>820 - 952</td>
<td>17.6</td>
<td>28.7</td>
<td>2.4</td>
<td>1422.8</td>
<td>1135</td>
<td>588</td>
</tr>
<tr>
<td>4. Third plateau (south)</td>
<td>162 - 1085</td>
<td>20.6</td>
<td>29.5</td>
<td>1.8</td>
<td>1653.7</td>
<td>966</td>
<td>436</td>
</tr>
<tr>
<td>5. Third plateau (north)</td>
<td>350 - 586</td>
<td>21.5</td>
<td>34.8</td>
<td>4.3</td>
<td>1584.0</td>
<td>780</td>
<td>656</td>
</tr>
</tbody>
</table>

### TABLE 2 – Preferred site for ticks attachment on equine hosts in the State of Paraná, Brazil.

<table>
<thead>
<tr>
<th>Body regions</th>
<th>Total no. ticks</th>
<th>Anocentor nitens No. %</th>
<th>Boophilus microplus No. %</th>
<th>Amblyomma cajennense No. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside ears</td>
<td>1049</td>
<td>820</td>
<td>39.0</td>
<td>204</td>
</tr>
<tr>
<td>Poll and mane</td>
<td>506</td>
<td>506</td>
<td>24.1</td>
<td>–</td>
</tr>
<tr>
<td>Throat</td>
<td>586</td>
<td>270</td>
<td>12.8</td>
<td>286</td>
</tr>
<tr>
<td>Neck</td>
<td>366</td>
<td>–</td>
<td>–</td>
<td>356</td>
</tr>
<tr>
<td>Breast</td>
<td>466</td>
<td>–</td>
<td>–</td>
<td>428</td>
</tr>
<tr>
<td>Armpits and inguinal region</td>
<td>766</td>
<td>338</td>
<td>16.1</td>
<td>387</td>
</tr>
<tr>
<td>Other regions</td>
<td>337</td>
<td>169</td>
<td>8.0</td>
<td>152</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4076</td>
<td>2103</td>
<td>51.6</td>
<td>1792</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHIC REFERENCES


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