

# SOME RECORDS ON HOST QUESTING BEHAVIOR OF *Amblyomma cajennense* (ACARI: IXODIDAE) LARVAE

## Relatos sobre o comportamento de larvas infestantes de *Amblyomma cajennense* (Acari: Ixodidae) na natureza

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**SUMMARY:** On 8 July 2002, when walking through an area highly infested by free-living stages of *A. cajennense* at Paulicéia municipality, State of São Paulo, we observed several clusters of larvae on top of vegetation, at heights varying from 15 to 50 cm. No larvae cluster was found bellow 15cm. Five of these clusters were taken to laboratory where they were reared until the adult stage. All adult ticks were identified as *A. cajennense*. Exceptionally, we found a larval cluster questing at a vegetation stem at a height of 185cm above ground. This larval cluster were also reared in laboratory and all adult ticks were also identified as *A. cajennense*. The significance of the *A. cajennense* larval questing heights is discussed.

**KEY WORDS:** *Amblyomma cajennense*, ticks, host questing, climbing.

*Amblyomma cajennense* is one of the most prevalent tick species in the Neotropic region, where it has been recorded on dozens of host species (ARAGÃO, 1936; PEREIRA *et al.*, 2000; LABRUNA *et al.*, 2003). These records comprise mostly medium and large sized mammals, including man. Although some avian species showed to be highly suitable hosts for *A. cajennense* larvae and nymphs under laboratory conditions (LOPES *et al.*, 1998), records of *A. cajennense* on birds in nature are scarce (ARAGÃO, 1936). This scarcity shall be related to limitations of taxonomic identification of *Amblyomma* immature stages from the Neotropics.

It is known that the height above ground at which Ixodid ticks quest is determinant to host specificity (LANE *et al.*, 1995). In fact, mean heights of host questing by several tick species have been correlated with heights of their primary vertebrate hosts (CAMIN & DRENNER, 1978; LANE *et al.*, 1995). To our knowledge, there is no study concerning climbing behavior of *A. cajennense* larvae on vegetation. In the present paper, we report observations on free-living stages of *A. cajennense*, especially host-questing larvae, in a high infested area.

On 8 July 2002 we visited a forestal area located at Paulicéia municipality, State of São Paulo. This area was a preserved remnant of the Interior Atlantic rainforest of São Paulo State, composed by trees reaching about 20m height and several bushes and scrubs in the undergrowth stratum. According to local residents, tapirs (*Tapirus terrestris*) capybaras (*Hydrochaeris hydrochaeris*) and horses were often seen in this area. These animals are considered to be primary hosts for *A. cajennense* in Brazil (LABRUNA *et al.*, 2002). When walking through the area, we observed about 20 clusters of larvae on top of vegetation, at heights varying from 15 to 50 cm. No larvae cluster was found bellow 15cm. Five of these clusters were taken to laboratory and reared until the adult stage as described by PINTER *et al.* (2002). Adult ticks were identified into species through Aragão and Fonseca (1961) taxonomic key. A total of 301 adult ticks (127 males, 174 females) were obtained, which were all identified as *A. cajennense*. Exceptionally, we found a larval cluster questing at a vegetation stem at a height of 185cm above ground (Figure 1A and B). We collected this larval cluster separately and took it to laboratory. From the whole larvae, we reared 52 ticks until the adult stage, which were also identified as *A. cajennense* (22 males



Figure 1. *Amblyomma cajennense* larvae questing at a height of 185cm above ground. A. one of the authors indicating the presence of the larval cluster on the vegetation stem; B. detail of the larval cluster.

and 30 females). The abundance of *A. cajennense* larvae at early July coincides with reported data of larval activity of this tick species in Southeastern Brazil (LABRUNA *et al.*, 2002).

According to CAMIN & DRENNER (1978), host-selection behavior of ticks is basically divisible into two phases: host-finding phase, which is often characterized by positioning state in which the tick moves up the vegetation to a point at which it is likely to encounter a suitable host, and host-discrimination phase in which the tick either attaches to the host and feeds or rejects the host, drops to the ground, and resumes its search behavior. Our observations showed that most *A. cajennense* larvae take the host-finding phase at heights between 15-50cm above ground. This behavior would select ticks to find medium and large sized hosts, avoiding small sized hosts like murid rodents. In fact, *A. cajennense* immature ticks have been recorded on a variety of medium and large sized mammal species (ARAGÃO, 1936; LABRUNA *et al.*, 2003).

The finding of *A. cajennense* larvae questing at 185cm height was surprising. This tick species is native from the Neotropic region, where the tallest native terrestrial animal species are the Marsh-deer (*Blastoceus dichotomus*), which reaches the maximum height of 132cm (DUARTE & MERINO, 1997), and tapirs (*Tapirus* spp), with maximal height of 110cm (EMMONS, 1997). Horses, an introduced host species in the Neotropical region, seldom reach heights higher than 180cm.

Thus, the significance of larvae questing at heights above these terrestrial mammal sizes could be of limited importance, although it could be one of the possible ways of *A. cajennense* host-questing larvae to encounter arboreal birds.

## SUMÁRIO

Em 8 de julho de 2002, ao caminhar em uma área do Município de Paulicéia, Estado de São Paulo, altamente infestado por estágios de vida livre de *A. cajennense*, foram observados vários agrupamentos de larvas no topo da vegetação, em alturas variando de 15 a 50 cm. Nenhuma larva foi encontrada abaixo de 15 cm. Cinco destes agrupamentos foram levados ao laboratório, onde as larvas foram criadas até o estágio adulto. Todos carrapatos adultos foram identificados como *A. cajennense*. Excepcionalmente, foi encontrado um agrupamento de larvas na altura de 185 cm acima do solo. Este agrupamento foi também criado em laboratório, sendo que todos os carrapatos adultos também foram identificados como *A. cajennense*. O significado das alturas em que larvas de *A. cajennense* foram encontradas, procurando hospedeiros, são discutidos.

**PALAVRAS-CHAVE:** *Amblyomma cajennense*, carrapato, procura de hospedeiro.

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