RESUMO SIMPLES - ECTOPARASITOS: SISTEMÁTICA, EPIDEMIOLOGIA E CONTROLE

COMPARATIVE EVALUATION OF THE ONSET OF LARVAL HATCHING IN AMBLYOMMA SCULPTUM AND AMBLYOMMA CAJENNENSE SENSU STRICTO UNDER CONTROLLED CONDITIONS

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The Amblyomma cajennense complex is currently represented in Brazil by the species Amblyomma sculptum and A. cajennense sensu stricto (s.s.), which exhibit low host specificity and can parasitize a wide range of vertebrates, including humans. They are vectors of Rickettsia rickettsii, the etiological agent of Brazilian spotted fever, highlighting their relevance within the One Health framework. Understanding the biological characteristics of each species is therefore essential for predicting their seasonal dynamics and the potential impacts on host infestations. Among these traits, the timing of larval hatching plays an important role in determining when larvae become active in the environment. Comparing this parameter between these two species provides

insight into developmental differences that may influence their ecological behavior and epidemiological relevance. Thus, the aim of this study was to evaluate whether there is a difference in the onset of larval hatching between A. sculptum and A. cajennense s.s. This study was conducted at Centro de Pesquisa Clínica e Inovação Tecnológica em Medicina Veterinária - Laerte Grisi, formerly Laboratório de Quimioterapia Experimental em Parasitologia Veterinária (LQEPV), part of the Departamento de Parasitologia Animal (DPA) at the Instituto de Veterinária (IV), Universidade Federal Rural do Rio de Janeiro (UFRRJ), Seropédica, Rio de Janeiro, Brazil. Four generations of egg masses from both species were evaluated. Engorged females, naturally detached from rabbits (CEUA/IV/UFRRJ 1268101223), were incubated in Petri dishes (90 × 15 mm) to allow oviposition for 25 days in climate-controlled chambers at 27 ± 2 °C and 80 ± 10% relative humidity. After this period, the egg masses were pooled and homogenized to obtain 25 replicates of 100 mg of eggs each per generation, totaling 100 replicates. Each replicate was placed in a glass tube (13 × 100 mm), sealed with cotton, and labeled with species, replicate number, and weighing date. The tubes were examined daily under a stereomicroscope to determine the presence of hatched larvae until all replicates showed at least one hatched larva. Descriptive statistics were performed, including the calculation of mean and standard deviation. Data distribution was assessed using the D'Agostino-Pearson test, followed by a t-test for two independent samples, since the data were parametric, with a 95% confidence interval and a significance level of $p \leq 0.05$. Amblyomma sculptum hatched in a mean of 12.04 ± 1.4 days (10–16 days), whereas A. cajennense s.s. required 15.23 ± 2.4 days (12–23 days). The difference between means was highly significant ($p < 0.0001$), indicating that A. cajennense s.s. exhibits an approximate three-day delay in larval hatching compared with A. sculptum. This delay reflects distinct embryonic development rates between the species, which may influence their population dynamics and synchronization with available hosts in the environment. Such differences should be considered in the planning of control strategies, as well as in future biological and ecological studies. Based on the results, it is concluded that A. cajennense s.s. has a longer larval hatching period than A. sculptum.

Palavras-chave: ixodids; biology; ecology.