

EFFECT OF TEMPERATURE ON CATTLE TICK REPRODUCTION AND TRANSOVARIAL TRANSMISSION OF *ANAPLASMA* *MARGINALE*

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In Brazil the tick *Rhipicephalus (Boophilus) microplus* has been incriminated as vector of *Anaplasma marginale*, a pathogen that causes anaplasmosis in cattle. Some studies have demonstrated the male ticks have an importance in the transmission of *A. marginale* due to their mobility among cattle. In addition, the intrastadial and transtadial transmissions of *A. marginale* have been demonstrated, but the transovarial transmission is still controversial. In the present study the effect of temperature on reproduction of the tick *R. (B.) microplus* and the transovarial transmission of *A. marginale* were investigated. Tick larvae were fed on calves infected with *A. marginale* strain Jaboticabal (State of São Paulo, Brazil). The engorged females were kept at 18°C or 28°C with 80% humidity. After oviposition, eggs were weighted and maintained at 18°C or 28°C for larvae hatching. The presence of *A. marginale* was analyzed in eggs and larvae by TaqMan (qPCR) for the *msp5* gene. The weight of eggs laid by females kept at 18°C was significantly lower than those kept at 28°C, reflecting a lower rate of fecundity. Moreover, larvae hatching was absent in eggs kept at 18°C. The presence of *A. marginale* was not detected in either egg (n=115) or larval (n=80) samples from females incubated at both temperatures. Additionally, in cultures of tick embryonic cell line (BME26) incubated at either 28°C or 34°C was not observed differences in total number of *A. marginale*, supporting that temperature has no effect on *A. marginale* growth. Altogether, our results show that temperature changes can affect tick reproductive development but not the transovarial transmission and growth of *A. marginale*. The lack of evidence of transovarial transmission of *A. marginale* reinforces the vectorial capacity of male ticks.

Keywords: *Anaplasma marginale*; temperature; tick.

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