

## MITOCHONDRIAL AND NUCLEAR MARKERS IN POPULATIONS OF BRAZILIAN *RHIPICEPHALUS* (BOOPHILUS) *MICROPLUS*

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The tick *Rhipicephalus* (*Boophilus*) *microplus* is the most important bovine herd ectoparasites and it can be found in tropical and subtropical areas. Among parasites found in bovines, this tick is responsible for major economic losses in different regions of the world. That said there's a large amount of studies for control and prevention of this parasite. The use of molecular techniques like markers for the study of ticks has developed new ideas within population structures and taxonomical relations. For individually or population related studies, interspecific and intraspecific polymorphism are analyzed, which allows an evaluation of philogeographic patterns using mitochondrial and nuclear alleles through sequences of mitochondrial cytochrome oxidase subunit 1 and nuclear internal transcribed spacer 2. This evaluation with these markers may characterize the genetic diversity in side and between populations of *R. (B.) microplus*. In Ixodidae, the nuclear internal transcribed spacer 2 may be useful to evaluate the existence of critical species (morphologically similar, but genetically distinct). These markers are commonly used for primers designs in polymerase chain reaction, sequencing and posterior phylogenetic analysis. The variation within populations is usually analyzed using statistical patterns to detect the amount of haplotype unique, number of segregating sites, haplotype diversity and nucleotide diversity. This is possible by the use of ARLEQUIN 3.1 software. Uncorrected pair wise distance matrices may be obtained by MEGA software version 4. For the construction of phylogenetic trees, usually used "Bayesian inference", with maximum likelihood, maximum parsimony and neighbor-joining methods by PAUP software version 4.0. Studies like this may contribute with the interpretation of molecular ecology and the development of future methods of control against this organism.

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