

RESUMO SIMPLES - ECTOPARASITOS: SISTEMÁTICA, EPIDEMIOLOGIA E CONTROLE

DICHOTOMOUS KEY FOR MOLECULAR IDENTIFICATION OF TICKS

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The Brazilian territory has 79 species of ticks (order: Ixodida). This high number of species and the lack of dichotomous keys for larvae makes morphological identification difficult. Despite this, articles from the last 5 years continue to rely solely on morphological identification, probably due to the high cost of sequencing. The LBioMol of UFRRJ has been developing molecular methods based on PCR-RFLP to complement and reduce the cost of sequencing. However, the method developed for ticks, based on a fragment of the 16S rDNA molecular target, is difficult for the user to interpret due to the large number of species included. The present study aimed to develop a dichotomous key to facilitate the identification of Brazilian ticks through PCR-RFLP of the 16S rDNA target. A search was conducted in the GenBank database for DNA sequences of the target used for all species found in Brazil. The sequences found were aligned with the primer pair and trimmed to the expected size by in vitro PCR, then digested in silico with the restriction enzymes DraI and VspI using the NEBcutter site. The identification key was created using the separation of fragments into zones of 50 base pair on an agarose gel as a substitute for the traditionally employed morphological criteria. When only two restriction enzymes were unable to separate the species, additional enzymes were used.

In total, 1547 sequences belonging to 74 species were used, resulting in 176 restriction profiles. These profiles were divided into 2 keys, with the first key using DraI and VspI and the remaining keys using additional restriction enzymes, allowing the identification of all 74 species. The use of PCR-RFLP for separating field-collected samples into groups belonging to the same species will reduce the cost of sequencing, as it will only be necessary to sequence one representative of each group. Dichotomous keys have the potential to facilitate the separation into groups and make it more accessible to the public.

Palavras-chave: pcr-rflp; ixodida; brazil.