IDENTIFICATION OF TWO CASPASES-LIKE GENES IN THE CATTLE TICK

*Rhipicephalus microplus*

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*Introduction:* Caspases participate in proteolytic pathways required for promoting apoptosis. In arthropods, the apoptosis pathway is necessary for development and immunity, and it has been well studied in different models as *C. elegans*, *D. melanogaster*, and lepidopterans, however their role in ticks is poorly studied. In mammalians, the knowledge on the process of apoptosis are wide, including morphology, biochemistry and detection methods, as well as discussion of potential alternative forms of apoptosis. Therefore, studies developed in others species may contribute to elucidate new apoptotic pathways and physiological roles in arthropods. Thus, the aim of this work is identify caspases in the cattle tick *Rhipicephalus microplus*.

*Materials and methods:* Specific primers for both sequences obtained in database were used to amplify partial nucleotide sequences of two caspases from *R. microplus* cells cDNA by PCR. The amplicons were cloned into pGEM-T vector, followed by transfection of in *Escherichia coli*. Recombinant plasmid DNA was extracted and DNA sequencing performed to confirm the identity of cloned sequence. Nucleotide analysis and deduced aminoacid sequences were carried out using public databases, NCBI and ExPASy. *Results:* Two DNA sequences similar to Caspase-1 and Caspase-7 genes, were identified in *R. microplus*. For Caspase-1 a fragment of 784 bp was recognized, which encode a protein with 260 amino acids. For the Caspase-7 a fragment of 830 bp was identified, which encode a protein with 276 amino acids. Identity of the Caspase-1 and Caspase-7 was 48% and 47%, respectively, in comparison with orthologues sequence of *Spodoptera Frugiperda*. Analysis of caspases family characteristics showed high identity with super-family C14, thereby was possible identified two subunits, P20 and P10, and active site in both sequences. *Conclusions:* Two caspases-like genes were identified in *R. microplus*. RNAi studies will be made in BME26 cells for highest comprehension these caspases genes in the death pathway.

*Key Words:* Caspases, Apoptosis, *Rhipicephalus microplus*

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