Cloning of the Gene and Characterization of the Phosphoenolpyruvate Carboxykinase (PEPCK) from *Rhipicephalus (Boophilus) microplus*

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The cattle tick *Rhipicephalus (Boophilus) microplus* is an important ectoparasite that causes economic losses in the production world-wide. A vaccine against ticks is considered a high priority for industry; however it depends on the identification and characterization of molecules involved in the tick physiology like phosphoenolpyruvate carboxykinase (PEPCK). This enzyme is involved in gluconeogenesis pathway. The objective of the present study was the cloning of the PEPCK gene and the analyses of the relative transcription and its activity of the native PEPCK. Primers were designed for PEPCK coding region after obtained the full-length cDNA. A product of 1908 pb was amplified in PCR and ligated into plasmid vector pGEM-Teasy. *Escherichia coli* TOP 10 strain was transformed with the plasmid. The ORF PEPCK coding region was sub-cloned in the pET5a expression vector and the identity of the clone was confirmed by PCR and hydrolysis with restriction enzymes. The expression of recombinant protein is in progress. By qPCR, it was showed that the relative transcription was high in partially engorged females, mainly in the gut and during all embryogenesis. Larvae submitted to starvation relative transcription of the PEPCK started on the day 1 after eclosion, with peak on the 5th day. During embryogenesis and larvae in starvation the PEPCK activity increased gradually. Taken together these data suggest that PEPCK is involved in the glucose balance during the tick embryonic development.

Palavras-Chaves: Phosphoenolpyruvate Carboxykinase,, *Rhipicephalus (Boophilus) microplus,* vaccine

Supported by: CNPq, FAPERGS, CAPES, FAPERJ and INCT-EM.