

KINETIC CHARACTERIZATION OF EXOPOLYPHOSPHATASES IN CATTLE
TICK *RHIPICEPHALUS (BOOPHILUS) MICROPLUS* EMBRYOS

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The cattle tick *B. microplus* is one of the most important ectoparasites of livestock, both in Brazil and in the tropics and subtropics in general. Polyphosphates (polyP) are linear polymers of orthophosphate energy-rich, serving simultaneously as phosphate and energy reserves of the cell. These compounds are highly mobile cell components. The Exopolyphosphatases are important in polyP metabolism and its function is hydrolyze chains of polyphosphate to P_i . In the present work, two exopolyPs were characterized in *B. microplus* embryos utilizing polyP₁₅ as substrate. The exopolyP 1 displayed optimal activity at pH 7.0. Some divalent cations can increase the exopolyP activity, 1 mM of Ca^{2+} and Mn^{2+} , increased up to 29% and 31% respectively. The values of K_m and V_{max} were 5.44 mmol and 0.042 $\mu\text{mol}/\text{min}$, respectively. In addition, the exopolyP 2 displayed optimal activity at pH 7.0, but its activity was stimulated by Zn^{2+} (1mM) up to 40.5% and the values of K_m and V_{max} were 4.18 mmol and 0.047 $\mu\text{mol}/\text{min}$, respectively. The enrichment was around 470-fold for exopolyP 1 and 70-fold for exopolyP 2. The obtained results will help us to understand the polyP metabolism in *B. microplus* embryos. Supported by **PRONEX, PADCT, FAPERJ, CNPq and CAPES.**