

Identification of bloodmeal sources of triatomines captured in the Paraguayan Chaco region of South America by means of molecular biology analysis

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Abstract

The Paraguayan Chaco is an isolated environment with its own unique ecosystem. In this region, Chagas disease remains a health problem. Chagas disease is caused by the parasite *Trypanosoma cruzi*, and it is primarily transmitted by triatomines. In order to identify the blood meal sources of triatomines, specimens of the vector were collected in domestic and peridomestic areas and the PCR-RFLP method was implemented. Cytochrome b was amplified from the samples and later subjected to digestion with two restriction enzymes: Hae III and Xho I. It was possible to generate distinct restriction patterns on the amplified material to identify several blood meal sources for the vectors. We employed the blood from several species as positive controls: human, chicken, canine, feline, and armadillo blood. However, we identified only 3 sources for the blood meals of the insect vectors: human, chicken and canine blood. In total, 76 triatomines were captured. *T. cruzi* was not found in any of them. In 61% of the captured specimens, the blood meal sources for the vectors could be identified. In 30% of these cases, the presence of DNA from more than one vertebrate was detected in the same triatomine. The most common blood meal source found was chicken blood. The presence of human and chicken blood in triatomines captured in domestic and peridomestic areas strongly suggests that the parasite can freely move amongst both areas regardless of food availability. Free vector movement in these areas constitutes an epidemiological threat for the inhabitants of the community under study.