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TRYPANOSOMA CRUZI IN ANIMAL TRAFFICKING SAMPLES USING LAMP ASSAY

Talia M Tremori, Julio Lopez-Aban, Pedro Fernandez-Soto, Antonio Muro-Alvarez
and Noeme S Rocha

Sao Paulo State University, Brazil

Trypanosoma cruzi, an important protozoan parasite for humans and animals, causes Chagas disease, a Neglected Tropical Disease (NTD) that could affect roughly 6–7 million people in the world, mainly in underdeveloped countries. The vector is a blood-sucking insect and so many mammals could be reservoirs. Animal trafficking, smuggling and illegal trade is the fourth most common illegal activity in the world. An important point concerning illegal animal trade and the increasing globalization is that it represents a possible vehicle for illness spreading, including zoonosis, creating a health public issue. Hence, the diagnosis in endemic regions and limited resources is very important. An alternative is a molecular technique named Loop-Mediated Isothermal Amplification (LAMP), and this assay is a one-step amplification reaction that amplifies a target DNA with high specificity, efficiency and rapidity under isothermal conditions. This study verified the prevalence of the zoonotic agent *T. cruzi* in 50 samples from animal trafficking of Brazilian mammals, using muscle, blood and skin samples. The molecular diagnosis of *T. cruzi* was done using the LAMP assay and had been 50% of positivity according to figure 1. This analysis could be important to identify reservoirs of *T. cruzi* and the risk about animal trafficking to human health. Also the use of LAMP assay in fast and trial diagnosis to major infections zoonotic diseases.



Figure 1: Frequency distribution of LAMP positivity on animal trafficking samples (N = 50).

Recent Publications

1. Hodo C L, Wilkerson G K, Birkner E C, Gray S B and Hamer S A (2018) *Trypanosoma cruzi* transmission among captive nonhuman primates, wildlife, and vectors. *Ecohealth* 15(2):426–436.
2. Tomassone L, Berriatua E, De Sousa R, Duscher G G, Mihalca A D, et al. (2018) Neglected vector-borne zoonoses in Europe Into the wild. *Vet Parasitol* 251(December 2017):17–26.
3. Besuschio S A, Llano Murcia M, Benatar A F, Monnerat S, Cruz Mata I, et al. (2017) Analytical sensitivity and specificity of a Loop-Mediated Isothermal Amplification (LAMP) kit prototype for detection of *Trypanosoma cruzi* DNA in human blood samples. *PLoS Negl Trop Dis*.11(7):1–18.
4. Alacs E A, Georges A, Fitz Simmons N N and Robertson J (2010) DNA detective: A review of molecular approaches to wildlife forensics. *Forensic Sci Med Pathol*. 6(3):180–94.

Biography

Talia M Tremori has her expertise in Veterinary Medicine, Animal Pathology applied to Forensic Sciences. Bachelor's degree in Veterinary Medicine, master's degree in Animal Pathology (Sao Paulo State University, Campus of Botucatu, Brazil) doctor's degree in Veterinary Preventive Medicine (Sao Paulo State University, Campus of Botucatu, Brazil) and Health and Development on the tropics (University of Salamanca, Spain), researching criminal identification of animals coming from trafficking and its impact on public health. She integrates the "Pro Forenses" Project (CAPES–Brazil), WAWFE (Worldwide Association of Women Forensics Experts) and "Association Ibero american of Medicine and Forensic Veterinary Sciencess". She has participated in many events in Brazil and abroad in Forensic Veterinary Medicine, Animal Science and Forensic Sciences.

talia_missen@hotmail.com