

## SUMMARY OF THESIS

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MARCIANO, Maria Aparecida Moraes - **Pesquisa de IgG anti-*Toxoplasma gondii* em exudato cárneo para monitoramento da qualidade da carne bovina.** [dissertação]. São Paulo: Instituto de Medicina Tropical de São Paulo da Universidade de São Paulo; 2013.

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### RESEARCH OF IgG ANTI-*Toxoplasma gondii* IN EXUDATE MEAT JUICE FOR MONITORING THE CATTLE BEEF QUALITY

Toxoplasmosis, caused by *Toxoplasma gondii*, is one of the most prevalent systemic parasitic infections in the world, affecting nearly one billion people and a significant number of cattle beef for human consumption. Ingestion of raw or undercooked meat containing viable cysts agent, is one of the main routes of its transmission, responsible for the occurrence of several outbreaks. Currently, cattle beef has no national sanitary monitoring program for detection of this zoonotic disease, for the industrial, inspection is just macroscopic. Cysts detection methods such as bioassay and PCR presented several restrictions such as the long processing time and very expensive costs which invalidate the large scale production. Previous studies using enzyme immunoassay (ELISA) showed that flesh meat exudates (fluid obtained by thawing meat) allowed the detection of IgG anti-*T. gondii* in retail cuts of rabbit meat, enabling the use of this methodology as a tool for monitoring meat. In this study, a standardized ELISA was applied for bovine flesh meat exudate, using samples from calves experimentally infected with *T. gondii*. The infection of animals was certified by the presence of IgG antibodies in serum by ELISA, indirect hemagglutination (HI) and the Modified Agglutination Test (MAT), and also by existing brain cysts seen through the immunohistochemistry and detected by PCR. After standardizing experimental models, we applied the test in commercial retail cuts of

beef not processed (n = 99), resulting in a positivity of 38.38% (38/99). We also evaluated the application of this methodology for processed meat products such as sun-dried meat. Only 28% (9/32) of the samples had enough blood for the detection of IgG antibodies by ELISA. This effect was also observed in samples of sun-dried meat obtained in the retail market. Out of 42 samples only 9.5% (4/42) showed enough amount of exudate in blood, limiting the use of this material for detection of IgG anti-*T. gondii* in commercial cuts of processed meat; however it showed fully feasible for cuts of non-processed meat. We also standardized agglutination tests such as the MAT and HI for the detection of IgG in bovine flesh meat exudate. After standardization, these tests were applied to samples of meat exudates obtained at retail, but showed false negative results, with low sensitivity compared to ELISA (gold standard). Data from this study showed that the proposed diagnostic approach using bovine flesh meat exudate as biological material represents an important and easy method for monitoring implementation of cattle beef in sanitary control programs and can directly contribute to both the prevention of human infection and the explanation of outbreaks of that disease.

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