

Serological screening of toxoplasmosis in neotropical non-human primates kept in captivity, in Pará state: comparison between modified direct agglutination method and the indirect immunofluorescence assay

Juliana Vasconcelos Figueiredo^{1,2}, Rafaela dos Anjos P. B. Morais², Kaio Willy Silva da Silveira², Rodrigo Rodrigues Marinho², Wanda Silva da Costa², Liliane Almeida Carneiro³, Marinete Marins Póvoa², Ediclei Lima do Carmo²

1. Programa Instituição de Bolsas de Iniciação Científica/IEC/CNPq
2. Laboratório de Toxoplasmose/IEC/SVS/MS
3. Centro Nacional de Primatas/SVS/MS

Toxoplasmosis, infection caused by protozoan *Toxoplasma gondii*, is one of most common and prevalent zoonoses in the world. In some animal species, mainly in the ones kept in captivity, such as neotropical non-human primates (NNHP), the infection may develop to a severe disease, that can result in the animal death. Due to the high lethality, the diagnoses in these animals are *post mortem*, by the lesions histopathological analysis, immunohistochemistry and electron microscopy. However, serological methods have been used more frequently in surveys conducted among different NNHP species. The aim of this study was to evaluate the modified direct agglutination (MAT) in comparison with indirect immunofluorescence assay (IFA) for the serological screening of *T. gondii* infection in NNHP kept in captivity at the National Primates Center (CENP), Ananindeua-PA. Blood samples were collected from 136 NNHP, of both sexes and different species. To detect anti-*T. gondii* IgG antibodies the collected sera samples were diluted (1: 8 to 1.1024) and tested by MAT and IFA (Cut-off titer ≥ 16). To evaluate the concordance between the two serological methods the Kappa test (K) was used. The parameters of sensitivity and specificity were calculated by a screening test (ST), with IFA being considered the reference test. The seropositivity frequency was 16.2% (22/136) by MAT and 13.3% (18/136) by IFA. The agreement between the two methods was 94.1%, (K = 0.766, P <0.0001). The sensitivity and specificity of MAT in relation to IFA was 88.9% and 94.2% respectively. Due to substantial agreement of MAT in relation to IFA, high sensitivity and specificity and because it does not require specific conjugates, it is suggested that MAT can be used, with the same efficiency of IFA, for serological screening of toxoplasmosis in NNHP colonies kept in the CENP.

Keywords: *Toxoplasma gondii*; Serological screening, IFA, MAT, neotropical non-human primates.