

investigations, as this feline specie is protected through an epidemiological peculiarity, the viral strain that occurs in jaguars must be better evaluated and epidemiological characteristics as the way of infection must be determined. Genotypic and phylogenetic analysis of rabies virus that occurs in jaguars could be interesting to clarify issue of rabies in the Brazilian pantanal.

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### Positivity and classification of bats submitted for rabies diagnosis at Pasteur Institute over the period from 2007 to 2012

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The bats are a major reservoir of rabies virus and have a relevant importance in the disease transmission. The aim of this study was to evaluate the bat population submitted for rabies diagnosis. Data were analyzed from 18.805 bats received by the diagnostic section of the Pasteur Institute of Sao Paulo, originated from several counties of the state of Sao Paulo over the period from 2007 to 2012. These specimens were morphologically classified according to their family, at the time of execution of the rabies diagnosis technique. The central nervous system from these animals was submitted to direct immunofluorescence test and, when viable, to viral isolation. From the total of bats received, 76.92% bats belonged to the Molossidae family, 12.14% to the Phyllostomidae family, 9.52% to the Vespertilionidae family, 0.02% to the Noctilionidae family and 1.37% to a group of bats whose identification was not possible to establish. Regarding positivity, 261 (1.44%) bats were diagnosed positive, 94 (36.01%) were from Vespertilionidae, 87 (33.33%) were from Phyllostomidae, 79 (30.27%) were from Molossidae and 01 (0.38%) was unable to classify. We also observed a total of 197 (1.26%) bats that were not submitted to the diagnosis due to poor preservation of the samples. These results showed that Molossidae was the main family received for rabies diagnosis; however, the positivity was higher in the Vespertilionidae family. The dynamic population investigation of the species is necessary in order to promote a better understanding of rabies seasonality in bats. These data reinforce the importance of an active search for suspect animals in order to establish new control strategies of these animals considering the epidemiologic surveillance of rabies and other zoonosis.

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### Indissociabilidade da presença de corpúsculos de Negri e da inflamação parenquimatosa em amostras de sistema nervoso central de herbívoros acometidos pela raiva

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**Introdução:** A raiva é uma meningoencefalomielite que acomete diferentes espécies. Estudos da literatura mencionam que possa haver uma dissociação entre a presença de infecção viral e inflamação. **Objetivo:** caracterizar as alterações histopatológicas no sistema nervoso central (SNC) de equinos e bovinos infectados pela raiva e comparar a presença de corpúsculos de Negri pela

coloração de hematoxilina-eosina (HE) e por técnica de imunohistoquímica, correlacionando a presença do antígeno viral e a inflamação. **Métodos:** 05 amostras de SNC de bovinos e 05 de equinos foram analisadas pela coloração de HE. O antígeno da raiva foi pesquisado pela técnica de imunohistoquímica (IHQ), utilizando-se anticorpo policlonal antivírus da raiva e método Estreptavidina-biotina peroxidase. Diferentes regiões do SNC foram avaliadas: córtex, hipocampo, cerebelo e tronco encefálico. A caracterização histopatológica e imunohistoquímica foram realizadas semiquantitativamente de acordo com a intensidade de achados observados. **Resultados:** as alterações histopatológicas encontradas nas amostras de SNC dos herbívoros estudados, independentemente das espécies, foram: meningite, congestão vascular, necrose neuronal, edema perivascular, perivasculite e vasculite, cromatólise e nódulos microgliais, sendo em grau discreto a moderado na maioria dos casos. Corpúsculos de Negri nas diferentes regiões cerebrais foram evidenciados em 90% das amostras, sendo o cerebelo a região mais acometida. A avaliação do antígeno viral por imunohistoquímica apresentou positividade em praticamente todas as amostras, com exceção de uma amostra de equino. O cerebelo também foi a região que apresentou maior positividade para o antígeno viral por imunohistoquímica. **Discussão e conclusões:** O processo inflamatório deuse concomitantemente com a presença de corpúsculos de Negri e de material antigênico nas diferentes regiões do SNC de ambas as espécies, havendo correlação positiva entre inflamação e imunopositividade para o antígeno viral.

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### Molecular techniques for rabies virus detection in organs of frugivorous bats

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The aim of this study was to detect the rabies virus (RABV) presence in different organs of frugivorous bats using molecular techniques such as RT-PCR, hnRT-PCR, and the Real Time RT-PCR. Thirty bats of the genus *Artibeus* were selected and resulted as positive by the DFA test and N2A-cells inoculation test using brain tissue in both tests. Samples of salivary gland tissue, urinary bladder tissue, kidney tissue, lung tissue, stool, and skull lavage were collected for molecular assays. The organs and the stool were diluted at 1:10 (w/v) and the urinary bladder was diluted at 1:20 (w/v). The RT-PCR and the hnRT-PCR were performed using specific nucleoprotein gene-target primers. The product obtained by reverse transcription technique was submitted to the Real Time RT-PCR technique, using primers and probe specific for the RABV antigenic variant 3. For the 180 samples evaluated, the sensitivity results detected by the RT-PCR, hnRT-PCR and Real Time RT-PCR techniques were: 56.25%, 82.57%, and 82.19%, respectively. The results obtained by RT-PCR showed lower sensitivity of this technique compared with the hnRT-PCR and Real Time RT-PCR techniques, excepted for skull lavage samples. A comparison of hnRT-PCR and Real Time RT-PCR techniques performed by Fisher's exact test showed that the proportion of positives was non-significant ( $P > 0.05$ ) among skull lavage, organs and stool. Thus, the results suggest that hnRT-PCR and Real Time RT-PCR techniques can be used as complementary methods for the rabies diagnosis and are sensitive to be used in detecting RABV in different organs and extra neural tissues of bats.

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