

PT.066**SURVEY OF THE SPATIAL DISTRIBUTION OF BATS ACCORDING TO TYPE AND POSITIVE FOR RABIES IN BOTUCATU-SP THE PERIOD 2006 TO 2011.**

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Bats are considered to be the main transmitters and disseminators of rabies virus in Brazil's urban centers, particularly in regions where canine rabies has been controlled. This brings up a great fear for the public health authorities in the country about this disease, which would be the possible reintroduction of rabies in domestic animals due to easier interaction with the bats, and also from contact with humans. Clearly increasing the number of cases of various species of bats that were diagnosed as positive for rabies throughout the country especially in the state of São Paulo. The municipality of Botucatu – SP is located in the midwestern region and is located at 22 53 09 south latitude and 48 26 42 west longitude, 804 meters above sea level, and makes an important surveillance work, since 2003, where animals are collected on public roads or residences and then are submitted for diagnosis at Faculty of Veterinary Medicine and Animal Science of UNESP, Botucatu, where is installed the Zoonosis Diagnostic Laboratory. Among theirs 2006 and 2011 where received 984 bats for diagnosis, being in 2006, 278 bats, 182 in 2007, 115 in 2008, 116 in 2009, 166 in 2010 and 127 in 2011. Only in 2008 and 2011 did not find positive for rabies bats. In others years there were 11 positive diagnoses, characterized at least three genres: *Artibeus*, *Myotis* and *Nyctinomops* and two species, *Artibeus lituratus* and *Myotis nigricans*. The positive bats (all non-hematophagous) are distributed in the central part of the city, in areas with large trees, two creeks that surround the city. In the spatial distribution of species in the country, we find the homogeneous distribution of at least 40 genus/species of bats, being the most frequent 55% (557) belonging to the genus *Molossus*, including species *Molossus molossus* and *Molossus rufus*, distributed in equal uniformity throughout the municipality. Revealing that although this distribution, and the large number of genera/species involved, the virus is restricted to only five genera/species, also restricted to the central area of the municipality. Also important to highlight the nonpositivity of the bats of the genus *Molossus*, despite being the greater quantity and better distributed by county. 1 UNESP – São Paulo State University – Veterinary Medicine and Animal Production College – Public Health and Veterinary Hygiene Department – Botucatu – SP, Brazil.

PT.067**ESTUDO DO VÍRUS RÁBICO EM INDIVÍDUOS E COLÔNIAS DE QUIRÓPTEROS NO RIO GRANDE DO SUL BRASIL**Pacheco SM¹, Rosa JCA², Ferreira JC², Batista HBCR³, Rigoletti R², Roehe PM^{2,4} – ¹Instituto Sauver, ²FEPAGRO – IPVDF, ³Instituto Pasteur, ⁴UFRGS

O número de espécies de quirópteros infectadas pelo vírus da raiva (RABV) tem sido crescente. Até o momento, 42 espécies de três famílias foram identificadas no Brasil. Os dados sobre a prevalência do vírus nestas espécies e a importância destas na manutenção dos diferentes ciclos da raiva, ainda são escassos. O Instituto de Pesquisas Veterinárias Desidério Finamor (IPVDF/FEPAGRO) é referência para o diagnóstico de raiva no Rio Grande do Sul (RS), sul do Brasil. Desde agosto de 2007 o IPVDF/FEPAGRO faz a identificação morfológica dos quirópteros enviados ao diagnóstico de raiva, cujos espécimes são provenientes de diversos municípios do Estado. A identificação das espécies de quirópteros é fundamental tanto para avaliar a circulação do RABV, como para identificar possíveis impactos do estresse nas colônias de quirópteros das diferentes espécies. De 2007 a 2011 houve 47

morcegos positivos para o RABV variando de 07 a 13 indivíduos/ano. Cerca de 300 morcegos/ano foram enviados ao Laboratório de Virologia do IPVDF/FEPAGRO para o diagnóstico de raiva, provenientes de 115 municípios. Das 38 espécies que ocorrem no RS, nove foram identificadas infectadas com o RABV. As espécies são *Artibeus lituratus* e *Desmodus rotundus* pertencentes à família Phyllostomidae; *Eptesicus furiensis*, *Histiotus velatus*, *Lasiurus ega*, *Myotis levis* e *Myotis nigricans* da família Vespertilionidae, e representantes da família Molossidae, *Molossus molossus* e *Tadarida brasiliensis*. As espécies *A. lituratus*, *E. furiensis* e *Lasiurus ega* foram relatadas como agressoras. Porém, tal agressão ocorreu no momento da captura. As outras espécies identificadas positivas para o RABV não apresentaram relatos de agressão, apesar de terem sido identificadas muitas fraturas ósseas e cranianas (às vezes, quase sem cérebro), lesões internas (órgãos com hematomas) ou carcaças secas. As espécies *Molossus molossus* e *Tadarida brasiliensis* são as espécies mais frequentes com diagnóstico positivo para raiva e, também as mais comuns no Rio Grande do Sul. Nos últimos dois anos (2010- 2011) o IPVDF/FEPAGRO vem recebendo indivíduos provenientes de colônias e, então, é realizada a análise a fim de verificar se as colônias possuem circulação do vírus rábico. Os resultados mostram que colônias até 70 indivíduos não possuem morcegos positivos; no entanto, em alguns casos, morcegos encontrados mortos e provenientes de colônias com mais de 500 ou 1000 morcegos, possuem indivíduos positivos, e nesse caso, a espécie é *T. brasiliensis*. Os dados demonstraram que nem sempre os relatos de agressões por morcegos estão relacionados com a infecção pelo RABV. Portanto, estudos devem ser realizados para avaliar se o impacto na remoção dos morcegos de seus abrigos diurnos, sem aguardar sua dispersão natural e sazonal, acarreta o aumento do estresse nas colônias, e consequente queda na imunidade, que pode influenciar no aumento do número de indivíduos infectados pelo RABV.

PT.068**BEHAVIOR FOR SIX YEARS OF ATTACKS A HUMAN BY VAMPIRE BATS IN NORTHERN JALISCO, MEXICO, AFTER THE IMPLEMENTATION OF AN INTENSIVE CAMPAIGN TO CONTROL THIS POPULATION AND ITS RELATIONSHIP WITH THE EXISTENCE OF REFUGES AND LOCAL LIVESTOCK NEARBY.**Morales Rodríguez JA¹, González López AA¹, Rodríguez Cobián FJ² – ¹Secretaría de Salud Jalisco – Región Sanitaria ⁰¹ Norte Colotlán, ²Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación de Jalisco – Distrito de Desarrollo Rural ⁰⁸

Objective. To determine the behavior for six years of attacks on humans by vampire bats in northern Jalisco, Mexico, after the implementation of an intensive campaign to control their population by using an ointment made of warfarin suspended in vaseline (Vampirinip II), and the relationship of such attacks in the presence of refuges and nearby livestock. **Material and Methods.** From June 2006 to April 2008 was made an intensive search campaign bats refuges in northern Jalisco, recording your location on GPS and applying ointment of anticoagulant only those classified as vampire bats by their external morphological features. In addition, a search was conducted and timely monitoring of attacks on humans by vampire bats during the years 2006 to 2011, and the amount of livestock in the area in the same period to find any relationship between these variables. **Results.** During the six years studied there were 864 attacks on humans by vampire bats. The ten municipalities of northern Jalisco reported attacks, although in different amounts. From 2008 there was a reduction in the number of attacks, with the overall reduction at

the end of 2011, 50%. We identified 551 refuges with bats, but only 13.25% of them had the presence of vampire bats. We obtained a positive correlation between aggression to humans and the presence of refuges in the presence of vampire bats ($r_2 = 0.69$, $p = 0.00$). There was no correlation between aggression and the presence of livestock in the region. The most affected municipalities were Bolaños Chimaltitán and San Martín de Bolaños. **Conclusions.** The ointment of anticoagulant Vampirinip II has proven useful in controlling vampire bats. The nearby refuges identify the presence of these bats, can sensitize the population to carry out strategies to reduce the attacks on human and on local livestock. **Acknowledgements.** The authorities of the Health Region 1 of the Health Department of Jalisco, the Rural Development District 08 of the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food of Jalisco, and H. Municipalities of northern Jalisco-Bolaños, Colotlán, Chimaltitán, Huejuar, Huejuquilla el Alto, Mezquitic, San Martín de Bolaños, Santa María de los Angeles, Totatiche and Villa Guerrero- during the years 2006 to 2008, for his technical, methodological and / or financially unqualified support to perform this work.

PT.069

DETECTION OF RABIES VIRUS IN INSECTIVOROUS BATS FROM THE URBAN AREA IN MONTERREY NUEVO LEON, MEXICO

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In Mexico there are 154 species of bats, of these, 37 are distributed in Nuevo Leon, which can be insectivorous, frugivorous, or hematophagous. The most common bat in Nuevo Leon is *Tadarida brasiliensis mexicana*, it is an insectivorous, and it is also the smallest free-tailed bat. There are other species of insectivorous bats, such as *Nycticeius humeralis*, *Myotis* sp, *Lasiurus ega*, *Eumops perotis*, *Antrozous pallidus*, *Corynorhinus townsendii*, *Lasiurus cinereus*, and *Leptonycteris nivalis*, which are useful in maintaining ecological balance, contributes to the spread of seeds, and eat insects that harm agriculture. However, in 1984 the rabies virus was reported in *Tadarida brasiliensis mexicana*, and in 1998 the first human death caused by rabies transmitted by bats insectivorous was reported in Latin America. Between 2009 and 2010, 7 cases of the variant V-9 were diagnosed and they corresponded to the same domestic species, *Canis familiaris* and *Felis catus*. In rural areas of Nuevo Leon, as well as in the urban area of Monterrey there are habitats for different species of bats. Monterrey is the capital of the state and the third most populous city in Mexico, there, the highest number of cases have been detected. Therefore, the objective of this study was to detect cases of rabies in the urban area of Monterrey because of potential risk for humans and domestic animals. During 2011 and 2012, 21 bat samples were analyzed by using immunofluorescence, antigenic characterization and genotyping techniques. Identification of species showed 14 *Tadarida brasiliensis*, 3 *Lasiurus* sp, 1 *Nycticeius humeralis*, 1 *Leptonycteris nivalis*, 1 *Lasiurus ega*, and 1 *Lasiurus cinereus*. From these, 8 bats were positive for rabies virus, and an antigenic characterization was performed using 8 monoclonal antibodies, with this study, the variant 9 (V-9) was the most predominant. Genotyping of *Lasiurus ega* and *Lasiurus cinereus* samples showed 99% of similitude with *Lasiurus intermedius*. This study demonstrates the high prevalence of rabies in insectivorous bats, which threatens both humans and domestic animals, and suggests the implementation of sustainable programs to prevent cases of rabies in these species. Acknowledgements: We

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PT.070

PUBLIC PRODUCTION OF ANTIRABIES VACCINES IN ARGENTINA: AN HISTORIC REVIEW

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In 1976, the most important outbreak of rabies occurred in Argentina. The government adopted different strategies to find an answer to this sanitary problem. The main important was a vaccination campaign using first generation vaccines Fuenzalida- Palacios type (FP), that have been produced in rat sucking brain. At national level, this production has been done in the INPB-ANLIS “Dr. Carlos G. Malbrán” and resulted in an effective control of the outbreak. Until 2009, 100000 human doses (only for national use) and 50000 veterinary doses (only for outbreak control) have been produced per year. Since 2009, and following OPS-OMS’ recommendations, the government is leading for a replacement of FP vaccines for imported second generation ones for human use and stressed vaccination animal campaigns using similar vaccines produced by private vaccine manufactures. Although endemic areas stay in the north of the country, modifications in bats’ migration patterns have to be considered, due to climate changes. This scene entails an urgent need of veterinary vaccines to make a real sanitary impact. Looking after this challenge, we have been developing cell-culture platforms to approach more technological vaccines. The development of veterinary vaccines using BHK cells as substrate has been done on microcarriers cell culture. We have worked with cell densities between 5 and 8 x 10⁶ cells/ml generating, at least, four harvests with titles of 10⁶ LD₅₀/ml or higher. Three consistent vaccine batches have been produced with a potency of 1 IU/dose or higher. For new national vaccines, we have developed a recombinant canarypox virus in collaboration with the INTA. This virus has the glycoprotein rabies gene among its DNA, extracted of CVS-Malbrán rabies strain, developed in our laboratory. The virus is grown over primary culture of chicken embryo fibroblasts. In non avian hosts, these viruses produce a suicidal infection: they can't complete its infection cycle, but there's expression of viral proteins that are processed by host cells, generating a humoral and cellular immune response. This potential vaccine has shown impressive antigenic values, higher than 3.5 IU/ml and the measurement of neutralizing antibodies doesn't decrease significantly after a year. An advantage of these viruses is the resistance to liofilization process using lactose 10 mg/ml without losing its immunogenicity. In this way, we have realized potency assays that show similar values in comparison with not liofilized viruses. By these days, we are working hard in developing another recombinant canarypox virus containing only the rabies nucleoprotein gene. The final objective would be a canarypox antirabies vaccine containing both the rabies nucleoprotein and glycoprotein genes.