

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.

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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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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.