

Bats and viruses: A preliminary study to investigate the circulation of pathogens in indigenous bats

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Bats represent the second largest order of mammals after rodents. With more than 1,400 chiropteran species identified to date, bats comprise one-fifth of all mammalian species worldwide. Many of bats studies in the world showed their association with more than 200 viruses, bacteria, parasites and fungi pathogens. Nowadays, the role of bats in the transmission of some infectious diseases to both human and animals is not clearly elucidated. Our aim was to identify by molecular biology tools, leptospirae (bacterial disease), selected RNA viruses that could be transmitted by the oro-fecal route: Coronavirus, Rotavirus, Hepatitis E, Canine distemper virus, and Rabies virus, commonly reported in bats in UE and in France.

The overall objective of this work is to investigate the presence of pathogens in indigenous bats in order to explore a potential risk to both human and animals public health related to bats fecal specimen exposure. For this purpose, three different collection modes have been defined to assess the presence of these pathogens in bat samples: Guano (n=200) and oropharyngeal swabs samples (n=220) were collected during the period of bat swarming by capture/releasing, Guano (n=494) and urine samples (n=15) were collected during a survey of two bat colonies and Bat carcasses (n=167) collected in the frame of the passive surveillance network of bat rabies.

Our results show, the presence of viral genome of Coronavirus, Hepatitis E and Rotavirus on 5 tested viruses and in the three different collection modes. The next step will be the investigation of the presence of leptospirae in urine and guano samples. An epidemiological study is planned to analyze our obtained results in order to see relations between bats information (species, sex, age) and the presence of pathogens.