The rabies virus (RABV) isolated from different mammals seem to have unique characteristics that influence the outcome after animals get infected. The RABV circulates in nature and is maintained by reservoirs that are responsible for persuading the disease for almost 4,000 years. As different clinical aspects are observed in animals naturally and experimentally infected the aim of this study was to evaluate clinical aspects, quantify the viral replication in brain tissue of experimentally infected mouse associated with FAT results of RABV isolated from 5 animal species. The selected virus were isolated from some of the main reservoirs in Brazil being related to a bat (Myotis spp.), a fox (Cerdocyon thous), a dog (Canis familiaris), a bovine (related to Desmodus rotundus) and to a monkey (Challithrix jacchus). The mice were 40 female, specific pathogen free (SPF), swiss albino mice, 45 days old that were divided into 5 groups of 6 animals. The intracerebral mouse inoculation was performed with 0.03mL of the inoculums (standard dilution) for clinical observation and sample collection. Although all virus resulted in an infection with 100% of lethality, it is remarkably notated that the time of evolution of some samples is much longer than others variants. When the animals get sick after being inoculated with samples originated from fox and monkey it takes more time to death to occur when comparing to the other studied samples. The monkey and fox samples had similar evolution period, for monkey sample the symptoms initiated after 10 days and the evolution to death of all inoculated animals were of 4 days, in the fox sample the symptoms initiated after 9 days and the evolution in this case was of 8 days. Otherwise the samples isolated from the bat, dog and bovine initiated symptoms after 8 days and had an evolution period of three days. The presence of the RABV was investigated by FAT. The virus was identified by this technique in all samples. Some differences could be observed. The pattern of positivity in some infected tissues is smoother when comparing samples related to dog, fox and vampire bats. The virus isolated from Challithrix jacchus and Myotis spp. presented a discrete fluorescence and some points of fluorescence in the tissue, while the samples isolated from the bovine, a variant probably related to Desmodus rotundus (V3), the corpuscles were big and with strong fluorescence, such as those observed in canine related samples. In order to quantify the viral replication in the brain of the infected animals the Real Time was performed, the cDNA was made using oligo dt and Super Script II (Invitrogen), and the reaction was performed using GoTaq qPCR Mster Mix (Promega). The dog, fox and bovine sample presented a higher rate of replication, which could be observed by the detection of viral antigen in brain of infected animals. The time to death was not related to the viral replication once the virus isolated from Cerdocyon thous presented replication similar to the dog and Desmodus rotundus and was the sample with the longest incubation and evolution time. On the other hand virus isolated from monkey had the lowest replication comparing to the other isolated virus followed by the virus isolated from the bat (Myotis spp.). This results demonstrated that virus isolated from different species have unique characteristics that can reflect on the viral replication but not necessary on the evolution period and lethality of the infection.