The role of wild mammals in the maintenance of rift valley fever virus.


Rift Valley fever virus (RVFV) is a zoonotic arbovirus affecting primarily domestic ruminants and humans. Numerous vector species are known or implicated in the transmission of RVFV. The role of mammals in the maintenance of RVFV, and the existence of a wild mammal reservoir in the epidemiologic cycle of RVFV, remain largely unknown. Our objective is to present a detailed review of studies undertaken on RVFV, often associated with wild mammals, with the aim of focusing future research on potential reservoirs of the virus. Natural and experimental infections related to RVFV in several mammalian orders, including Artiodactyla, Chiroptera, Rodentia, Primata (nonhuman), Perissodactyla, Carnivora, Proboscidea, Erinaceomorpha, and Lagomorpha, are reviewed; the first four orders have received the greatest attention. The possible role of wild ruminants, especially African buffalo (Syncerus caffer), is also discussed. Conflicting results have been published concerning rodents but, based on the literature, the likely candidate species include the African genera Arvicanthis and Micaelamys and the widely introduced roof rat (Rattus rattus). Members of the orders Chiroptera and Rodentia should receive greater attention associated with new research programs. For the other orders mentioned above, few data are available. We are unaware of any investigation concerning the orders Afrosoricida and Soricomorpha, which are represented in the geographic area of RVFV and can be abundant. As a first step to resolve the question of wild mammals as a reservoir of RVFV, serologic and virologic surveys should be promoted during epizootic periods to document infected wild animals and, in the case of positive results, extended to interepidemic periods to explore the role of wild animals as possible reservoirs.