Cairo university
Faculty of Veterinary Medicine
Department of Virology

Protective efficacy of an inactivated vaccine against rabbit hemorrhagic disease virus 2 prepared from a local isolate in Egypt

A Thesis submitted by

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(Virology)

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ABSTRACT

Rabbit hemorrhagic disease is a contagious viral disease of rabbits controlled by vaccination. The present study was aimed to diagnose rabbit hemorrhagic disease from 11 infected farms from Qalubia governorate during 2019 and to prepare homologous vaccine against rabbit hemorrhagic disease virus 2. For this purpose, 11 liver samples were collected from suspected cases and subjected to detection and identification of circulating rabbit hemorrhagic disease virus. Ten samples were confirmed to be rabbit hemorrhagic disease virus using hemagglutination test, animal inoculation and reverse transcriptase polymerase chain reaction. Sequencing and phylogenetic analysis of two isolates (R5&R6) revealed the presence of rabbit hemorrhagic disease virus 2 (A/Qalubia/2019 and B/Qalubia/2019) under accession number MT07629 and MT067630 respectively. The inactivated rabbit hemorrhagic disease virus vaccines were prepared using Montanide ISA 206 oil or aluminum hydroxide gel adjuvants. Prepared vaccines were inoculated subcutaneously in susceptible rabbits and submitted to sterility, safety and potency tests. Obtained results showed that mean hemagglutination inhibition titer for aluminum hydroxide gel vaccine was 6,7.7,8.9 and 9.1 log2 while, Montanide vaccine reached to 6.7,8.7,9.2 and 9.5 $\log_2$ at 1^{st}, 2^{nd}, 3^{rd}, and 4^{th} weeks post vaccination, respectively. Immunized rabbits with Montanide vaccine showed better protection reach to 70%, 90%, 100% and 100% when compared to aluminum hydroxide gel vaccine 60%, 70%, 90% and 90% at 1^{st}, 2^{nd}, 3^{rd} and 4^{th} weeks post vaccination respectively.

Keywords*: Rabbit hemorrhagic disease virus; humoral immune response; vaccination; serology; polymerase chain reaction; Lethal Dose 50*