ORIGINAL ARTICLE **Mirror of Research in Veterinary Sciences and Animals MRVSA/ Open Access DOAJ**

Identification of *quine influenza A virus* antibodies against nonstructural protein (NS1) enables differentiation among infected and vaccinated horses

Mazin Mahdi Al-Khafaji[1*], Ibtesam Q. Hassan [2*]
[1] Central Veterinary Laboratory (CVL)
[2] University of Baghdad / College of Veterinary Medicine

ARTICLE INFO
Received: 05.10.2016
Revised: 15.10.2016
Accepted: 30.10.2016
Publish online: 25.11.2016

***Corresponding author:**
ibtesam.qasim@yahoo.com
dr.mazinnaji74@gmail.com

Abstract
NS1 and NS2 are nonstructural proteins that found as two overlapping proteins encodes by the RNA segment 8 of *influenza A viruses*. NS1 is synthesized in massive amounts in the early infection and aggregates in the nucleus of infected cells. This study intends to find the tools to identify the equine influenza antibodies that derived from infected or vaccinated animals (DIVA) using indirect ELISAs, NP- ELISA and NS1- ELISA. The study was conducted between the period extended from November /2015 to March /2016. A total of 423 serum samples were randomly collected from different ages and genders horses in eight Iraqi governorates (Baghdad, Al-Muthana, Al-Najaf, Kerbala, Babel, Diyala, Wasit, and Al-Qadysia). Out of 423 samples, there were 132 (31.20 %) and 84 (19.85 %) positive serum by NP- ELISA and NS1-ELISA respectively. A significant correlation result ($P< 0.01$) was seen between positive and negative samples. High seropositive cases were found in males (17.73 %) by using NP – ELISA. Moreover, the NS1-ELISA also indicated the high infection rate that occurred in males (11.34%). In addition, significant ($P< 0.01$) results appeared for both ELISAs. A higher percentage (50.75%) of seropositive horses found in the age group of 11-15 years in NP- ELISA, however, 11-15 years age group also showed the infection rate of 50 % in NS1-ELISA with statistical differences of ($P<0.01$). In conclusion, the results of this study approved the possibility of using the nonstructural protein (NS1) as a differential diagnostic indicator for equine influenza virus infection.

To cite this article: Mazin Mahdi Al-Khafaji, Ibtesam Q. Hassan (2016). Identification of quine influenza A virus antibodies against nonstructural protein (NS1) enables differentiation among infected and vaccinated horses. MRVSA. 5 (3), 15-23. DOI: 10.22428/mrvsa. 2307-8073.2016. 00533.x

Keywords: DIVA, ELISA, Equine influenza, Nucleoprotein, Non-structural protein.