Seroprevalence of Avian Influenza and Newcastle Disease Viruses Antibodies in Backyard Poultry in Tripoli, Libya

Abstracts of postgraduate studies (Master – PhD)
Research, Consulting & Training Center

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The results of the Newcastle disease virus in poultry in Tripoli-Libya showed a high prevalence of the disease in the backyard poultry farms in Tripoli, Libya. A total of 218 samples were collected from different areas in Tripoli city. The results showed that the occurrence of the disease was high in the backyard poultry farms in Tripoli city. The prevalence of the disease was highest in the area surrounding Tripoli city, followed by the areas in the southern and central parts of Tripoli city. The results also showed that the Newcastle disease virus was present in backyard poultry farms in Tripoli city.

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Abstract

Backyard poultry may be sentinels and a source of infection for commercial poultry, since they may have as much contact with these birds as with migratory wild birds. Therefore, the backyard chickens are more susceptible to receiving and spreading infectious diseases such as avian influenza virus (AIV) and Newcastle disease virus (NDV). In Libya, the inadequate data about backyard poultry population rearing as well as their diseases has resulted in a knowledge gap in understanding the epidemiological pattern of AI and NDV. In this study, a mobile software “EpiCollect”, as a tool for veterinary epidemiology, was presented for the first time in Libya to rapidly create, share and collect data using a diverse mobile platform. It allows us in the field to upload the findings to a central website which indicates the places of samples on a map. It helps to build up a strong national database on animal disease events covering the remote access areas of the country.

In this study, AIV and NDV specific antibodies were detected using ELISA and HI test from backyard poultry in five main geographical regions throughout the great Tripoli city. For AIV type a virus, results have revealed that 177 out of 412 (43%) samples were positive by ELISA. By counting the percent positive samples from the total collected samples from each region it was found that the south Tripoli region has the highest incidence (79/88 = 89.8%) followed by the eastern region (37/84 = 44%) and then western region (29/82 = 35.4%). The lowest incidences were recorded at the central region (18/78 = 23.1%) and northern region (14/80 = 17.5%).

Regarding AIV-H9 specific antibodies using HI test, the highest titer was detected in southern (64.25=26.005) and western (44.5=25.475) regions. A moderate AIV-H9 specific antibodies were recorded in the eastern (28.25=24.84) and the central (24.75=24.629) regions. The lowest AIV-H9 specific antibodies were found in birds of the northern region (11.75=23.554). However, the HI tests results have indicated that samples from all 5 regions were negative for the AI specific antibodies against H5 and H7. NDV was frequently reported among the commercial poultry flocks across Tripoli regions. NDV specific antibodies were detected by ELISA test in 218 out of 412 samples (52.9%). Obviously, by counting the positive samples from the total collected samples from each region revealed that the southern region has presented the highest incidence of NDV specific antibodies (72/88 = 81.2%) followed by the eastern region (57/84 = 67.9%). A moderate incidence was detected in the central region (38/78 = 48.7%), followed by western III region (4/82 = 41.5%). The lowest incidence was recorded in the northern region (17/80 = 21.3%).

High NDV specific antibodies titers were detected in southern region (506=28.98). A moderate NDV specific antibodies were detected in the eastern (312=28.28), central (217=27.76) and western (186=27.53) regions. The lowest NDV specific antibodies were found in birds of the northern regions (55=25.78). Variations between individual birds were detected in all regions. In conclusion, in the present study, AI type A and NDV specific antibodies were detected, which indicate the existence of the AVI and NDV in the backyard poultry of different localities in great Tripoli city.