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FACULTY OF VETERINARY MEDICINE
DEPARTMENT OF MICROBIOLOGY

Molecular characterization and pathogenicity of avian reovirus from commercial broilers

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By

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6. SUMMARY

Avian reoviruses (ARVs) are important poultry pathogens that cause considerable economic losses in poultry husbandry. ARV infections often cause subclinical diseases, but clinical diseases have also been observed. These include enteric and respiratory diseases, myocarditis, hepatitis, and runting-stunting syndrome.

Runting-stunting syndrome (RSS) cause severe economic losses in the broiler industry through decreased body weights, elevated feed conversions, reduced uniformity, and reduced livability and cause secondary diseases. Therefore, the purpose of this thesis is to make survey for the presence of avain reovirus in Egyptian governorate and know the strains of reovirus present in Egypt and describe the pathogenicity of the obtained isolates in 7-day-old commercial chicks.

The study was carried on

1- Two type of samples are collected from 15 different broilers flocks from Egyptian governorate (2) alexandria, (6) El Behira , Giza (2), Kafr El Sheikh (3),El Gharbia (2)) and take 10 chicks from each flock.
   a- The first sample is blood samples (10 blood sample for each flock with total samples is 150) used for isolation of serum for antibody titration.
   b- The second sample is tissue sample from pancreases, liver and proventriculus. Used for PCR test.
2- 150 Serum sample are tested for antibody titer by indirect ELISA kits. The results revealed that we found in all flocks tested; 121 of 150 sample (80.66%) were seropositive.
3- (20)Tissue homogenate samples (pooled sample of pancreases, liver, intestine and proventriculus) were tested for polymerase chain reaction

(PCR) for detection of viral antigen. The result revealed that five (5) sample only are positive PCR from the twenty sample.

4- Isolation of the positive tissue homogenate samples for PCR in SPF embryonated chicken egg 5-7 days age (ECE) .Each sample are isolated in 5 eggs via yolk sac and candled daily for death of the embryo. Death for the embryo occur between 3-5 days.
5- The allantoic fluid are taken for second confirmatory RT-PCR.
6- Confirmatory RT-PCR revealed that 2 sample are only positive.
7- Nucleotides sequences for the two avian reovirus isolates and the phylogenic analysis for the two isolate are made. We found that the two isolate are completely similar to each other and similar to MS01strain by 100%.
8- Experimental infection of 7 days old broilers chicks and record antibody titer before and after infection .also record the post mortem lesions. We found that maternal antibodies in non-infected chickens decreased during the measurement as determined by ELISA. Meanwhile, the inoculated group showed a significant increase in the ELISA antibody titers following infection. Also, the isolated strains lead to runting stunting and arthritis in the infected group.