

Cairo University
Faculty Of Veterinary Medicine
Department of Virology

Name: Abd El-Satar Arafa Mohamed Arafa

Assistant Researcher, Central Laboratory for Veterinary Quality Control on Poultry Production, Animal Health Research Institute-Dokki-Giza

Date of Birth: 18/ 7/ 1972

Title: Characterization of Viral Genes of Subgroup “J” of Avian Leukosis Viruses Isolated In Egypt

Supervisors:

Dr. Mohamed Abd El-Hameed Shalaby

Professor of Virology, Virology Department- Faculty of Veterinary Medicine -Cairo University

Dr. Hussein Aly Hussein Ahmed

Professor of Virology, Virology Department- Faculty of Veterinary Medicine -Cairo University

Dr. Mona Mehrez Aly

Chief Researcher, Director of Central Laboratory for Veterinary Quality Control on Poultry Production and Deputy of Animal Health Research Institute, Dokki, Giza

Abstract

ALV-J has caused great economic losses in Egypt with high incidence of myeloid leukosis during 1998-2000. This study describes the incidence and prevalence of ALV-J among chicken flocks in Egypt during the period of 2001-2004.

In this study, clinical cases of ML were still found in different broiler breeder flocks during 2001-2004 and even in one broiler grandparent flock during 2003 and the results of histopathology, serology for ALV-J antibodies, viral isolation and PCR for ALV-J revealed that 14/19 flocks were affected with ALV-J. Also ALV-J has been emerged recently in egg-type chickens in Egypt in 2002 causing tumors of ML associated with decrease in egg production. This study was carried out on 8 affected layer flocks and recorded incidence of ALV-J in 6/8 flocks.

Also this study describes incidence and prevalence of ALV-J in apparently healthy broiler grandparent and broiler breeder flocks and found that 3/18 examined flocks were infected with ALV-J. The study revealed that the one-day-old chicks of broiler breeders which came from apparently healthy broiler grandparent flocks were not completely free from ALV-J, the study recorded 14/29 positive flocks, this indicate that their parent flocks are not free from ALV-J and able to transmit virus vertically.

Sequencing analysis for the nucleotides and amino acids as well as phylogenetic analysis of SU portion of env gene of 5 selected Egyptian strains were done and compared with reference strains and the results revealed that Egyptian strains are very closely related to each other (89.5-99.4%) and more close to US isolates UD-J1 and ADOL-7501 (91.6-97.9%) and slightly diverged from old reference strains HPRS-103 and ADOL-Hc1.

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List of Abbreviations

Ab = Antibodies
AEV = Avian Erythroblastosis virus
Ag = Antigen
ALSV = Avian leukosis sarcoma viruses
ALV-J = Avian leukosis virus subgroup "J"
AMV = Avian Myeloblastosis virus
B.B. = Broiler breeders
B.GP. = Broiler grandparents
CEF = Chicken embryo fibroblasts
C/E = CEFs that are resistant to subgroup E-ALV
C/O = CEFs that are susceptible to all ALV subgroups
CF = Complement fixation
Cl.swab = Cloacal swab
EAV = Endogenous avian virus
ELISA = Enzyme linked immunosorbant assay
env = Envelope
ev = Endogenous virus
gp = glycoprotein
gsa = group specific antigen
L = Layer
LL = Lymphoid leukosis
LTR = Long terminal repeat
ML = Myeloid leukosis
Nd = Not done
OD. = Optical density
PBS = Phosphate buffer saline
PCR = Polymerase Chain Reaction
Pl. = Plasma
PM = Post mortem
RAV = Rous associated virus
RSV = Rous sarcoma virus
RT = Reverse transcriptase
SU = Surface
T. = Tissue
T.C. = Tissue Culture
TM = Transmembrane
VN = Virus-neutralization
