**ACRONYMS USED**

 ILTV Infectious Laryngotracheitis Virus

 GHV Gallidherpesvirus 1

 OIE Office International des Epizooties

 CAM chorioallantoic membrane

 PCR Polymerase Chain Reaction

 mRT-PCR Multiplex Reverse Transcriptase Polymerase Chain Reaction

 Tk Thymidine kinase

 DNA Deoxy-ribonucleic acid

 dsDNA Double stranded deoxy-ribonucleic acid

 RFLP Restriction Fragment Length Polymorphism

 RE Restriction endonuclease

 ICP4 Infected Cell protein 4

 ORF Open reading frame

 gG Glycoprotein G

 UL Unique long

 US Unique short

 IR Inverted repeats

 ELISA Enzyme Linked Immunosorbant Assay

 AGID Agar gel immunodiffusion

 IF Immuno fluorescence

 VN Virus neutralization

 EM Electron microscopy

 PHA Passive haemagglutination

 IIF Indirect immunofluorescence

 IP Immunoperoxidase

 LAMP Loop-mediated isothermal amplification

 MDV Marek's disease virus

 IBV Infectious bronchitis virus

 NDV Newcastle disease virus

AIV Avian Influenza virus

HVT Herpesvirus of turkeys

I/N Intranuclear

CEO Chicken Embryo Origin

TCO Tissue culture origin

TRG Trigeminal ganglion

 CEL Chick embryo liver

SNPs Single nucleotide polymorphisms

UVH Upazilla veterinary hospital

SAQTVH Shahidul Alam Quaderi Teaching Veterinary Hospital

CVASU Chittagong Veterinary and Animal Sciences University

PRTC Poultry Research and Training Centre

DLS Department of Livestock Services

VTM Viral Transport Media

PBS Phosphate Buffer Saline

DW Distilled water

UP W Ultra pure water

BLAST Basic Local Alignment Search Tool

rpm Rotation per minute

Cvac Control vaccine

cds coding sequence

USDA United State Department of Agriculture

**SUMMARY**

Avian infectious laryngotracheitis (ILT) is a severe clinical respiratory disease of chickens caused by infectious laryngotracheitis virus (ILTV) resulting in dyspnoea, bloody coughing and reduced production in commercial poultry flocks. This study was designed for molecular detection of ILTV in commercial poultry flocks showing clinical respiratory symptoms and gross pathological lesions in dead birds. Simultaneously, infected cell protein 4 (ICP4) gene of the ILTV was characterized by direct sequencing and subsequent bioinformatics assay.

Field samples were collected from the 100 dead birds obtained from nine different poultry flocks of Chittagong and Gazipur district and cultivated into 9-11 day old embryonated chicken eggs through chorioallantoic membrane (CAM) route inoculation. Among them only 18 samples showed gross pathological lesions on CAM and in embryo (stunted growth of the embryo, haemorrhagic embryo, embryo mortality and pock like lesions on CAM). The eighteen samples were then subjected to mRT-PCR for screening of respiratory viruses. Out of the 18 only 12 samples showed either single or mixed (with two or three viruses) infections involving avian influenza virus (AIV), Newcastle disease virus (NDV), infectious bronchitis virus (IBV) and infectious laryngotracheitis virus (ILTV). For confirmatory diagnosis of ILTV specific PCR of ICP4 gene was performed. In both mRT-PCR and PCR assay only 3 samples (3%) were found positive for ILTV. From the PCR product direct sequencing of ICP4 gene was conducted and gene bank accession number was obtained for control vaccine (KC576526) which is a Chicken embryo origin vaccine and for field isolates (KC576525). Bioinformatics assay identified the field isolate of ILTV to be genomically similar to the vaccine isolate. Phylogenetic assay also confirmed the close relation between vaccine and field isolate of Bangladesh. From these findings it could be postulated that clinical infection of ILTV in Bangladesh were originated from Chicken embryo origin vaccines.