**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.