AVIBACTERIUM PARAGALLINARUM INFECTION IN QUAIL-A CASE REPORT

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ABSTRACT

A three week old ailing quail chick showing respiratory symptoms was brought to the Department of Veterinary Microbiology, College of Veterinary and Animal Sciences, Mannuthy for disease investigation. The bird was sacrificed and tissue samples collected were found to be positive for *Avibacterium paragallinarum* on multiplex polymerase chain reaction targeting major avian respiratory pathogens.

Keywords: *Avibacterium paragallinarum,* multiplex polymerase chain reaction

INTRODUCTION

Infectious coryza is an acute respiratory disease of chicken, pheasants, guinea fowl and Japanese quail, caused by the bacterium *Avibacterium paragallinarum*. The disease is characterized by facial swelling, inflammation of infraorbital sinuses and conjunctiva with clear or purulent discharge from the nares.

Early, rapid and accurate diagnosis is essential for reducing the economic loss associated with the disease. Conventional diagnosis is based on clinical signs, demonstration of satellite colonies on cultural examination and confirmation by biochemical tests. Nucleic acid based techniques are the best alternative tools for an easy and rapid confirmatory diagnosis (Nabeel ., 2015).

The present study documents the detection of *Avibacterium paragallinarum* from a clinically affected quail by polymerase chain reaction (PCR).

MATERIALS AND METHODS

A three week old quail chick from the University Poultry and Duck Farm, Mannuthy was brought to the Department of Veterinary Microbiology to investigate the cause of mortality in the flock. The bird was weak and depressed with serous nasal discharge, conjunctivitis and facial edema. The bird was sacrificed and post-mortem examination was

conducted. Tissue samples from spleen, liver, lungs and kidney were collected and deoxyribonucleic acid (DNA) was extracted using HipurA Multi-Sample DNA Purification Kit (Himedia). The ribonucleic acid (RNA) was extracted from the tissue samples by means of Trizol method and subsequently converted to complementary DNA (cDNA) using Biorad cDNA synthesis kit. A multiplex PCR was carried out to detect the major avian respiratory pathogens like New Castle disease virus, Infectious bronchitis virus, Infectious laryngeotracheitis virus, *Mycoplasma gallisepticum* and *Avibacterium paragallinarum*. The PCR products were subjected to submarine agarose gel electrophoresis and the results were analysed on gel documentation system.

RESULTS AND DISCUSSION

On post-mortem examination, airsacculitis, congestion of lungs and haemorrhages on kidney could be observed. The multiplex PCR could detect the presence of amplicon with size 500 bp corresponding to *Avibacterium paragallinarum*. No amplicons corresponding to New Castle disease virus, Infectious bronchitis virus, Infectious laryngeotracheitis virus and *Mycoplasma gallisepticum* could be detected.

The isolation and identification of *Avibacterium* is difficult since it is a slow growing organism and will take 36 – 48 h or more to show detectable colonies.It requires special supplements in the media like nicotinamide adenine dinucleotide (NAD) for growth. Polymerase chain reaction based approach is a practical alternative enabling the rapid detection of the disease (Chen ., 1998). This could help the farmers to adopt effective treatment procedures to combat the spread of the disease, till the results of culture and sensitivity could be obtained.

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