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## Studies on Outbreak of “New Duck Disease” in Kerala, India

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**Abstract:** An outbreak of new duck disease with a mortality rate of 12.5 % was reported in Kerala, India. The causative agent, *Reimerella anatipestifer* was isolated and identified from all the dead birds.

**Key words:** New duck disease, *Reimerella anatipestifer*, Kerala, India

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### Introduction

*Reimerella anatipestifer*, the causative agent of new duck disease causes a contagious septicemic disease especially in ducklings, turkeys and other birds. (Hirsh *et al.*, 2004). The disease is also known as duck septicemia or infectious serositis in ducks. Previously the organism has been known as *Pasteurella anatipestifer* or *Moraxella anatipestifer*. Association of the organism in highly acute disease is still in question. (Merchant and Packer, 2002). Till date, there was no report on *R. anatipestifer* infection in Kerala and hence, the present investigation was carried out to study the recent outbreak in an organized poultry farm.

### Materials and Methods

During October, 2006, mortality was reported in ducks maintained in an organized poultry farm attached to Veterinary college, Pookot, Wayanad district of Kerala was investigated. Detailed postmortem examination of dead birds was performed to observe the gross lesions. Swab from heart blood, pieces of lungs and liver were collected aseptically from each bird and cultured on 10% bovine blood agar and incubated under aerobic and anaerobically in a candle jar at 37°C for 24 hours. The non-hemolytic colonies obtained were identified as per the description of Segers *et al.* (1993) and Holt *et al.* (1994). Pathogenicity test in adult mice was carried out as per the method described by Curtis (1985). A total of 11 mice of 21- day- old were selected and 0.1ml broth culture of *R. anatipestifer* at the rate of  $2.5 \times 10^8$  cells per mice was inoculated intra peritoneally in duplicates for each isolates. One animal was kept as control. Antibiogram was carried out against 8 antibiotics as per Bauer *et al.* (1966).

### Results

Among 40 ducks maintained, five found to be dead. Two out of five, died without showing any symptoms. The gross lesions observed on postmortem were severe congestion of lungs, enlarged pinkish liver and spleen. The remained three showed dullness, huddling, poor

feed intake, refusal to swim, purulent oculo-nasal discharge, greenish diarrhea, incoordination and death with the gross lesions of congestion of lungs, pericarditis, perihepatitis, airsacculitis and severe enteric lesions.

All the inoculated blood agar plates showed convex, transparent, non-hemolytic colonies of 1mm in diameter after 24 hours of incubation. Better growth was noticed on plates incubated under anaerobic conditions. In addition to that, slightly mucoid, weak hemolytic colonies were also noticed on three plates. The organisms were purified and on Gram's staining revealed short Gram-negative rods. Out of eight isolates obtained, five were non-motile; positive for catalase and oxidase tests; negative for indole and H<sub>2</sub>S production; failed to grow on Mac Conkey agar and were identified as *R. anatipestifer*. The remaining three isolates were identified as *E. coli*. On pathogenicity test, no death was noticed till 5 days of post inoculation. At the end of the experiment all the surviving mice were euthanized and the inoculated agent was reisolated from visceral organs.

All the five isolates showed resistance to penicillin-G, oxytetracycline and co-trimoxazole but are sensitive to enrofloxacin, gentamicin, chloramphenicol, amoxicillin and doxycycline.

### Discussion

Out of 40 ducks maintained, 5 (12.5%) found to be dead during the outbreak, where as a mortality rate of 16 % was reported by Shome *et al.* (2006) in Meghalaya. Subramaniam *et al.* (2000) and Crasta *et al.* (2002) reported that mortality varies between 5-75%, depending on the age of the ducks and level of stress.

Similar clinical pictures and lesions were noted by Chandra *et al.* (2001) in acute and sub acute cases. None of the birds showed swelling of hock joints, but was reported by Shome *et al.* (2006). The biochemical and animal inoculation test results are in accordance with those of Shome *et al.* (2006) for identifying *R. anatipestifer*. Shome *et al.* (2006) also reported isolation of *R. anatipestifer* in ducks in conjunction with other

bacteria like *E. coli*, Staphylococcus and Pseudomonas. Based on the antibiogram results, the severely infected ducks were treated with enrofloxacin @ 5mg / kg body weight intramuscularly for 5 days and rest of the birds were given oral suspension of enrofloxacin for 5 days as recommended by Turbahn *et al.* (1997). Birds responded well and recovered rapidly.

The clinical picture of death without any symptoms and the isolation of *R. anatipestifer* uniformly from all the birds suggest an acute form of the disease and the timely administration of antibiotics controlled the mortality. Hence the present outbreak of new duck disease along with other recent reports Shome *et al.* (2006) indicates an emerging nature of the organism in duck industry.

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