Isolation, Characterization, and Antimicrobial Drug Resistance Pattern of *Escherichia coli* Isolated from Japanese Quail and their Environment

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**Primary Audience:** Veterinarians, Poultry Veterinarians, Poultry Scientists, Microbiologists

**SUMMARY**

*Escherichia coli* isolates were cultured from diseased Japanese quail and their environment. Of 31 *E. coli* isolates, 11 were cultured from heart blood of dead Japanese quail and 20 were from dead-in-shell embryos, fluff samples, and footbath and drinking water samples. All *E. coli* isolates were moderately positive on the Congo red binder test and 14 out of 31 isolates produced hemolysis on sheep blood agar. Twenty-seven isolates were grouped under serogroups O6, O11, O28, O42, and O68, whereas 4 isolates could not be typed. Of the *E. coli* isolates cultured from Japanese quail infected with colibacillosis, 54.5% belonged to serogroup O6 and the same serotype was predominant in the hatchery environment. All the *E. coli* isolates showed high resistance to multiple drugs with 100% resistance observed against ampiillin/chloramphenicol, tetracycline, and cotrimoxazole. The highest sensitivity was observed against nitrofurantoin. This study shows that hatchery hygiene should be improved to control colibacillosis and reduce production losses. At the same time, indiscriminate use of antibiotics should be avoided as it increases the risk of development of drug-resistant strains of bacteria.

**Key words:** *Escherichia coli*, drug resistance, Japanese Quail

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**DESCRIPTION OF PROBLEM**

*Escherichia coli* is a part of the common microbial flora of the intestine of poultry and most isolates are nonpathogenic. About 10 to 15% of intestinal coliforms are pathogenic serotypes [1]. Pathogenic *E. coli* are also present in the poultry environment. *Escherichia coli* causes a variety of lesions in poultry, including yolk sac infection, omphalitis, cellulitis, swollen head syndrome, coligranuloma, and colibacillosis [2]. Colibacillosis is an economically important disease, which is prevalent throughout the world [3]. Several reports are available about the involvement and serotypes of *E. coli* and the presence of disease in poultry [4, 5, 6]. Involvement of Newcastle disease also causes early chick mortality and the disease is widely preva-