

Contamination of chicken eggshell and egg contents with *Salmonella* species from selected farms in Kosgama, Colombo district

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Introduction

Salmonellosis is a severe problem among poultry-associated food-borne diseases caused by *Salmonella*. Chicken eggs have been reported as a common source for salmonellosis. Developed countries follow preventive measures during egg production to regulate quality of eggs released for general consumption while Sri Lanka has paid minimum attention to it. This study was implemented to determine presence of *Salmonella* on eggs from selected backyard and commercial chicken farms in the Kosgama area.

Methods

Backyard and commercial farms from Kosgama area were enrolled in the study. Number of farms were calculated according to the proportion of total farms in Kosgama. Farms of each type were separately listed with average number of eggs supplied to the market per month and farms with higher values were selected. Eggs were purchased and eggshells and contents were separately analyzed for presence of *Salmonella*. From egg content, 25 ml was immersed for pre-enrichment in 225 ml of 1% Buffered Peptone Water (BPW) and incubated at 37 °C for 24 hours. Same procedure was followed for eggshells according to the proportion of weight and BPW quantity. From pre-enriched samples, 0.1 ml was added to 10 ml of Rappaport Vassiliadis broth (enrichment media) and incubated at 42 °C for 24 hours. After incubation, each solution was streaked on Brilliant Green Agar (BGA) and Xylose Lysin Deoxycholate agar (XLD). Suspected colonies were tested with Gram staining and subjected to KIA pattern, urease test, indole test, and motility test for further identification. Serological tests are yet to be carried out.

Results

Specimens were selected randomly. Of 60 eggs, 35 were from backyard and 25 from commercial farms. From these specimens, 4 were positive for *Salmonella* spp. (6.7%). Three of the positive specimens were from backyard farms (3/35, 8.6%) and remaining specimen (1/25, 4%) was from a commercial farm. Of 4 positive specimens, one had contaminated content and the remaining 3 had contaminated eggshells. None of the specimens were positive for *Salmonella* spp. in both eggshells and contents. The proportion of *Salmonella* spp. showed no significant difference ($p=0.960$) between backyard and commercial farms.

Conclusion:

The prevalence of *Salmonella* spp. in the study sample was 6.7% (n=4) which is high according to available literature.

Keywords: *Salmonella*, egg content, eggshells, backyard, commercial

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