

PREVALENCE AND ANTIMICROBIAL RESISTANCE PATTERN  
OF *Escherichia coli* ISOLATES IN FECAL SAMPLES OF  
LAYERS FROM SELECTED FARMS IN  
INDANG, CAVITE

THESIS

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*Prevalence and antimicrobial resistance  
pattern of Escherichia coli isolates in  
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**LIEANNE MARIE E. OLAES**  
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## ABSTRACT

**OLAES, LIEANNE MARIE ESTILO, Cavite State University, Indang, Cavite. April 2017. Prevalence and Antimicrobial Resistance Pattern of *Escherichia coli* Isolates in Fecal Samples of Layers from Selected Farms in Indang, Cavite. Undergraduate Thesis, Doctor of Veterinary Medicine. Adviser: Chester Joshua V. Saldaña, DVM, MS.**

A study was conducted to determine the prevalence and antimicrobial sensitivity of *Escherichia coli* isolated from two hundred fifty three fecal samples of layers from selected farms in Indang, Cavite. The antibiotic resistance patterns using disk diffusion method was also studied. It also includes the probable risk factors associated with development of antibiotic resistance.

Results revealed that the overall prevalence of *Escherichia coli* in Indang, Cavite is 37.94%. Samples from Carasuchi have the highest prevalence of 65% followed by Guyam Malaki (22.08%) and Daine II (18.18%). Further testing of isolates revealed that among the number of antibiotics tested, resistance was observed against bacitracin (100%) and erythromycin (100%). Isolates also showed resistance to ampicillin (85.41%), vancomycin (80.21%), tetracycline (70.83%), sulfamethoxazole (61.46%), lincomycin (57.29%), trimethoprim-sulfamethoxazole (53.13), and cephalexin (48.96%). On the other hand, isolates were found to be susceptible chloramphenicol (95.83%), gentamicin (86.46%), nitrofurantoin (70.83) and enrofloxacin (56.25%).

Sixty different antimicrobial resistance patterns were observed in the study. Overall, the most frequent pattern recorded in three farms is TET-VAN-LIN-CEP-AMP-ERY-BAC. In Carasuchi, TET-VAN-LIN-CEP-AMP-ERY-BAC was the most common

pattern; NIT-VAN-CEP-TMPS-AMP-SUL-ERY-BACTET-VAN-LIN-ENR-ERY-BAC, VAN-LIN-TMPS-AMP-SUL-ERY-BAC, and TET-VAN-LIN-TMPS-SUL-ERY-BAC in Daine II and Guyam Malaki, respectively. Moreover, the resistance pattern varies per location with resistance phenotype were those having resistance in six to eighth (hexa, hepta and octa) antibiotics from Carasuchi with 21.54%, eight (octa) in Daine II (50%) and six (hexa) in Guyam Malaki with 47.06% occurrence.

Among the risk factors, the potential risk significantly associated with antibiotic resistance in *E. coli* was the administration of additional medicines. This study revealed the prevalence of multidrug resistant *E. coli* isolates from layers in Indang, Cavite.

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**PREVALENCE AND ANTIMICROBIAL RESISTANCE PATTERN  
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INDANG, CAVITE<sup>1</sup>**

**LIEANNE MARIE E. OLAES**

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**INTRODUCTION**

*Escherichia coli* is a type of bacterium that can be found in the intestinal tract of all warm blooded animals as a part of the normal gut microflora (Gillespie & Timoney, 1981). It is considered as one of the most important agents causing bacterial infection in poultry and may have also been a primary pathogen (Gross, 1994). In poultry, pathogenic *Escherichia coli* cause the typical colibacillosis in older chickens which also involves the respiratory tract as a result of inhalation of feces-contaminated litter dust. It also causes acute colisepticemia, fibrinopurulent serositis or coligranuloma/Hjarre's disease (Gillespie & Timoney, 1981). The effects of this disease in layer flocks have been recognized; outbreaks and case studies in Japan and Korea have lead to massive economic losses in layer flocks. Colibacillosis have caused sudden mortality in the layer flocks while having no previous clinical signs, however, severe lesions such as