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**Role of immune- modulators on the immune response to *E. coli* and *Salmonella* Enteritidis infection isolated from broiler chickens**

*A Thesis*

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## Abstract

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**Key words** : ***E. coli*, *Salmonella* Enteritidis, broiler, probiotic and herbal mixture.**

Bacteriological examination of 300 chickens was done for isolation and identification of bacterial strains causing enteric affections of chickens. The isolated microorganisms were *E. coli* and *Salmonella* serovars. The most predominant serogroups of the recovered *E. coli* were O<sub>78</sub> and O<sub>55</sub>.

The majority of *E. coli* O78 and *S. Enteritidis* isolates were multidrug resistant to most of the tested antibacterial classes. *E. coli* O78 showed complete resistance (100%) to amoxicillin, lincomycin, clindamycin, gentamycin and

Sulfa-methoxazole trimethoprim. 82.6% of the isolates were resistant to ciprofloxacin and 69.6% were resistant to spiramycin. Only 30.4% were sensitive to chloramphenicol. On the other hand, *S. Enteritidis* showed complete resistance

## Abstract

to cefotaxime, lincomycin and sulfa-methoxazole trimethoprim. *S. Enteritidis* showed sensitivity to ciprofloxacin with a rate of 50%. Experimental infections with *E. coli* O<sub>78</sub> and *Salmonella* Enteritidis, as well as evaluating the role of herbal mixture and probiotic against the experimental infection of *E. coli* and *Salmonella* Enteritidis in broiler chickens were done. Enteric and respiratory signs with other clinical signs, measuring the cellular immune response after experimental infection by nitro blue tetrazolium assay (NBT assay), and measuring the humoral immune response by indirect ELISA were recorded.

The obtained results proved that, The Probiotic (*Enterococcus faecium*) had a protective role against invasion and colonization of both *E. coli* and *Salmonella* Enteritidis. Also, these results proved that Probiotic is more effective than herbal mixture, Furthermore it recommended that Probiotic accompanied with herbal mixture were more protective against *E. coli* and *Salmonella* Enteritidis than herbal mixture alone.