FACULTY OF VETERINARY MEDICINE
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Salmonella species isolated from different sources with special reference to biofilm formation

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ENGLISH SUMMARY

The aim of this work was to study the distribution of *Salmonella* serovars among diseased chickens and diarrheic calves, also to determine the genotypic and phenotypic causes of resistance of *Salmonella* to antimicrobials. To achieve this aim, two hundred samples (100 diseased chicken samples and 100 fecal swabs from diarrheic calves) were directed to bacteriological examination according to ISO 6579: 2002 A1: 2007.

Confirmation was done by biochemical reactions, serotyping and molecular characterization which revealed the isolation of fourteen (14) *Salmonella spp*. isolates (9 from calves and 5 from chickens) with a percentage of 9% and 5% respectively. Phenotypic antimicrobial susceptibility testing of all isolates was done which revealed high sensitivity to Cefipime, Cefotaxime, Levofloxacin and Norofloxacin and high resistance to Sulphatrimethoprim, Chloramphenicol, Neomycin, Colistin, Amoxycillin and Spectinomycin. Eight isolated were multidrug resistant, five of them were from chickens (Three *S. Gallinarum*, one *S. Enteritidis* and one *S. Typhimurium*) representing all the isolated *Salmonellae* while the other three isolates were isolated from calves which were one *S. Enteritidis and* two *S. Typhimurium*.

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Biofilm binding activity of the 14 *Salmonella* isolates showed that three isolates had strong binding activity was and 11 isolates showed moderate binding. With addition of lactic acid 2%, the binding ability had been decreased. Three from the eight multi-drug resistant *Salmonellae* were strong biofilm producers which means that there is a relation between biofilm formation of *Salmonella* and its resistance to antimicrobials.

Genotypically, isolated *Salmonellae* were positive for class 1 integron and gene cassettes. Sequencing of gene cassettes revealed the presence of resistant genes to the following antimicrobials, Trimethoprim, Streptomycin, Spectinomycin, streptomycin

and Ampicillin in addition to a resistant gene to a disinfectant which is quaternary ammonium compound.

Enterobacterial repetitive intergenic consensus PCR (ERIC PCR) is important to identify and differentiate *Salmonella* isolates through the production of reproducible and complex fingerprints.

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