Cairo University
Faculty of Veterinary Medicine
Department of Microbiology

Advanced studies on *Enterococcus* species recovered from poultry

A Thesis Presented
By

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A letter of introduction from **Aalaa Samir Ahmed Saad**
Specialization: Microbiology

Title: Advanced studies on *Enterococcus* species recovered from poultry

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Abstract

Out of 150 samples 38 chicken samples (7 brains, 23 livers and 8 hearts), 41 pigeon samples (6 livers and 35 swabs), 41 duck samples (15 brains, 20 livers and 6 hearts) and 30 human samples (30 Urine samples). The prevalence of *Enterococcus* isolates were 79 %, 100%, 85.4% and 66.7% in the chickens, pigeons, ducks and human samples respectively. *Enterococcus* spp. showed gelatin hydrolysis activity positive in 50% of *Enterococcus* spp. recovered from chicken, While was positive in a percentage of 34.1% , 25% and 11.4% for *Enterococcus* spp. recovered from pigeons, human and ducks respectively. *Enterococcus* spp. isolated from pigeon had the highest casein hydrolysis activity 61% followed by *Enterococcus* spp. isolated from chicken 53.3% then *Enterococcus* spp. isolated from ducks 42.9% and the lowest casein hydrolysis activity was *Enterococcus* spp. isolated from human source 10%. The *Enterococcus* spp. results for affinity percentage from Chicken were 70% and 30%, Pigeon 61% and 39%, Ducks 68.6% and 31.4% and Human 95% and 5% as moderate and strong biofilm forming capability respectively. All *Enterococcus* isolates supernatant fluid showed cytopathic effect on the Vero cell line (100%).The prevalence of the total γ-hemolysis activity of *Enterococcus* spp. reached 66.7% as well as, the β-hemolysis activity and α– hemolysis reached 29.4% and 4% respectively. The percentage of 63.5% for *Enterococcus* isolates were positive for Haemagglutination (HA) of sheep blood while the percentage of 28.6 % was positive for HA of chicken blood. The results showed that *Enterococcus* spp. of chickens origin high resistant to Clindamycin, Oxytetracycline, Doxycycline, Gentamycin(LLA), Ciprofloxacin and Vancomycin. *Enterococcus* spp. of pigeons origin high resistant to Clindamycin, Oxytetracycline, Doxycycline, Gentamycin(LLA) and Vancomycin . *Enterococcus* spp. of ducks origin high resistant to Clindamycin, Erythromycin, Gentamycin(LLA) and Vancomycin. While *Enterococcus* spp. of human origin high resistant to Ampicillin, Clindamycin, Oxytetracycline, Gentamycin(LLA) and Vancomycin. The results revealed that a positive amplification of the *van*A, *van*B and *van*C genes in the 126 isolates of *Enterococcus* spp. were detected in a percentage of 19.84%, 16.67 and 8.73% respectively. While the a positive amplification of the *cat*A, *cat*B, *fex*A, *fex*B and *cfr* genes in the 126 isolates of *Enterococcus* spp. were 27%, 18.25 %, 11.90% and zero% respectively.

Key words: *Enterococcus* species, antimicrobial resistance, virulence, poultry.

Dedication to

My mother

My father

My sister

& my brother

Acknowledgement

All praise and Glory to **ALLAH** the Almighty who alone made this small Objective to be accomplished. I feel honored and privileged to glorify his name in the sincerest way through this small accomplishment and ask him to accept my efforts.

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