بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Cairo University
Faculty of Veterinary Medicine

Application of Molecular and Serological Methods for Rapid Detection of *Mycoplasma* Infection in Chicken Flocks

A thesis submitted by

Marwa Emam Amin Aly

(B.V.Sc., Cairo University, 2009)
(M.V.Sc. Microbiology, Cairo University, 2014)

For the Degree of PhD in Veterinary Medical Sciences (Microbiology)

Under Supervision of

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13/ 9 / 2020

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Supervision Sheet

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Abstract

Mycoplasma gallisepticum (MG) and *Mycoplasma synoviae* (MS) are the most significant pathogens of avian mycoplasmosis; therefore their diagnosis is of great importance in the veterinary medicine field. In the present study chicken samples of different ages were tested using conventional isolation methods for detection of MG and MS. The isolates were characterized by using PCR and SDS-PAGE technique and then isolates were tested for antibiotic sensitivity by minimum inhibitory concentration (MIC) method. Moreover, different types of chicken (Breeders, layers and broilers) were tested using conventional isolation methods and PCR for detection of MG and MS and serological tests as SPA and ELISA for detection of antibodies against MG and MS. MG and MS were isolated and it was noted that highest levels of prevalence of both MG and MS isolation was recorded in winter and autumn while lowest in summer and spring. Following the *16srRNA* – based detection of *Mycoplasma* isolates, Different isolates were identified by different PCR-based detection methods for various virulence genes (*mgc2* gene, *gapA* gene and*vlhA* gene). Duplex PCR mrthod was validated for the simultaneous identification of MG and MS. Using SDS-PAGE, 100% of MG and MS isolates generate common bands at 55 and 17 kDa, respectively. Using MIC method, tiamulin and spiramycin was identified as the antibiotics of choice for the treatment of MG and MS infections, respectively. Highest prevalence of MG was found in commercial layers, followed by breeders, while the lowest prevalence was detected in broilers While for MS the highest prevalence was found in breeders, followed by commercial layers and the lowest prevalence was detected in broilers, By comparing different methods for diagnosis of *Mycoplasma* infection, It is found that the highest prevalence of MG and MS was detected by Serological tests including SPA test followed by ELISA test and then by PCR and the lowest prevalence was detected by conventional culture method.

Key words: Chicken, ELISA, MG, MIC, MS, PCR, SDS.

Dedication

I dedicate this study to ***my mother****, who has always supported me morally, emotionally and financially in my scientific career and to* ***the soul of my beloved father*** *who was always proud of me.*

Also I dedicate this study to ***my brother and sister*** *for their continuous advice and encouragement.*

And also to ***the Soul of Prof. Dr. Mahmoud Essam Hatem*** *Prof. of Microbiology, Faculty of Veterinary medicine, Cairo University my mentor.*

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List of Contents