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SOME STUDIES ON MYCOPLASMAS IN QUAILS

By

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ABSTRACT

A total of 180 samples from living slaughtered quails divided into 90 samples from lung and 90 samples from air saes and 40 samples from lung of dead quails were examined. The obtained data revealed that 21 mycoplasmal isolates were recovered from 180 samples collected from slaughtered living quails and 8 mycoplasmal isolates were recovered from 40 samples collected from dead quails. Serotyping of such isolates proved that 11 of them were belonging to *M. galisepticum,* and 8 of *M. gallinarum* from living slaughtered quails. From dead quails mycoplasma isolates revealed 4 strains of *M. galisepticum,* and 3 strains from *M. gallinarum.* Antibiogram of *M. galisepticum* and *M. gallinarum* were highly sensitive to different antimicrobial agents such as ciprofloxacin, norfloxacin and enrofloxacin. Meanwhile, the tested strains showed moderate sensitivity to spiramycin, danofloxacin, neomycin and tylosine.

INTRODUCTION

Mycoplasma infection is responsible for serious losses in most of birds and quails. The quails played a role in dissemination of many pathogens and their role for the transmission of Mycoplasmal organisms have so far , not been completely studied During the last two decades a great attention was paid toward quails farming as a trial to fulfill excessive demands of the increased population for the animal protein (**Hamouda , 1992**).

This work was planned as an attempt to throw spotlights upon the mycoplasma in quails.

MATERIAL AND METHODS

1 Samples:

- Living slaughtered quails was divided into 90 samples from lung and 90 samples from air sacs.

b- Dead quails:

A total of 40 lung samples collected from 40 dead quails suffering from respiratory diseases (The samples were collected from private farms in Domiate Governorate) during the period from December up to February.

II- Isolation:

a) Media of isolation:

i- Transporting media and isolation medium PPLO broth (**Hayflick, 1965**).

ii- Agar medium PPLO agar (**Hayflick, 1965).**

b) Purification and maintenance were adopted according to **Freundt *et al.*, (1973)**.

c) Digitonin sensitivity test (**Erno and Stipkovits, 1973**).

d) Biochemical characterization:

Glucose fermentation, argenine deamination , tetrazolium reduction and film and spot as described by (**Erno and Stipkovits, 1973**).

e) Serological identification:

1-serotyping of Mycoplasma: was done using growth inhibition test according to **Clyde, (1964)**.

2-Standard antisera: Mycoplasma standard antisera were obtained from Mycoplasma Department (Animal Health Research Institute,Dokki,Giza).

f) Antibiogram for Mycoplasma:

It was applied using disc diffusion technique according to **Fingold and artin, (1982)**.

The antimicrobial agents containing different concentration including: Neomycin (30µg), Spiramycin (30µg), Ciprofloxacin(20µg), Enrofloxacin (10µg), Tylosin (15µg), Danofloxacin (30µg) and Norfloxacin(20µg).

The zones of inhibition were measured and interpreted according to **Oxoid Manual, (1982).**

RESULTS

A total of 180 samples collected from living slaughtered quails including 90 samples from lung and 90 samples from airsacs and 40 samples from lung of dead quails were examined in an attempt to explore the possible isolation of Mycoplasma spp.

As shown in Table (1) 21 mycoplasmal isolates were obtained from living slaughtered quails and 8 mycoplasmal isolates were collected from 40 dead quails. The isolates were divided into three groups according to their biochemical reactions.

It was found that 16 mycoplasmal isolates were glucose positive and argenine negative (11 isolates from living slaughtered quails and 5 isolates from dead quails). Also, 12 mycoplasmal isolates were proved to be glucose negative and argenine positive from which 9 isolates were from living quails and 3 from dead quails and one isolate from living slaughtered quail was glucose negative and argenine negative.

The serotyping of isolated are shown in table (2), 12 isolates from lungs of living slaughtered quails revealed 6 strains were related to *M. gallisepticum* 50%, 4 strains were identified as *M. gallinarum* (33.3%) while 2 isolates were untypable (16.7%).

Table (3) shows that the in-vitro antibiogram of Mycoplasma isolates (*M. galisepticum, M. gallinarum*) which were highly sensitive to different antimicrobial agents namely: Ciprofloxacin, Norfloxacin and Enrofloxacin. Meanwhile, the tested strains showed moderate sensitivity to Spiramycin, Danofloxacin, Neomycin and Tylosine.

It was also found that isolates from air sacs of living slaughtered quails, 5 strains of them were antigenically related to *M. gallisepticum* (55.6%) and 4 strains were related to *M. gallinarum* (44.4%). Meanwhile, 78 isolates from lungs of dead quails, 4 strains were related to *M. gallisepticum* 50% , 3 strains were identified as *M. gallinarum* 37.5% , and 1 isolate was untypable (12.5%) .

DISCUSSION

During the last two decades a great attention was paid towards quails forming a trial to produce meat of good quality with minimal content of cholesterol.

Quails play a considerable role in the dissemination of many pathogens and their role for the transmission of mycoplasmal organisms is still a point of argument.

The obtained data revealed that 21 mycoplasmal isolates were recovered from 180 samples collected from slaughtered living quails and 8 mycoplasmal isolates were recovered from 40 samples collected from dead quails. The serotyping of such isolates proved that 11 of them were *M. gallisepticum*. From dead quails, Mycoplasma isolates revealed 4 strains of *M. gallisepticum*. These results agreed with these reported by **Reece *et al.*, (1986)** who isolated *M. gallisepticum* from two flocks of quails and **Cookson and Shivaprasad, (1994)** who proved that mycoplasmal colonies were detected from samples collected from quails and added that such isolates were mycoplasmas other than *M. gallisepticum, M. synoviae.*

The obtained data revealed that 8 strains *M. gallinarum* were recovered from 180 samples collected from slaughtered living quails and 3 as *M. gallinarum* were recovered from 90 samples collected from dead quails .

These results agreed with those reported **by Bencina *et al.*, (1987) and Kardel, (1987)** isolated mycoplasmas from multiple age chicken flock, with an incidence of 46.3% were *M. gallinarum* . Meanwhile, **Lin and Liu, (1985)** isolated mycoplasmas from tracheal swabs which were belonging to *M. gallisepticum* , *M. synoviae* and *M. gallinarum*.

In the present study, the antibiogram was done on the isolated mycoplasmas which suggested that ciprofloxacin , norfloxacin and enrofloxacin were the most effective antimicrobial agents .These results coincide with those of **Stikovits, (1988)** . Also from the study, it was concluded that the antimicrobials of moderate actions were spiramycin, danofloxacin, neomycin and tylosin which agreed with those reported by **Tanner *et al.*, (1993)** who concluded that danofloxacin administrated in water was superior to tylosin in preventing air sac lesions. Also, **Bradbury *et al.*, (1994)** found that danofloxacin was more effective against *M. gallisepticum*.

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Table (1): Isolation of Mycoplasma and biochemical characterization of Mycoplasma obtained from slaughtered and dead quails.

Samples	No. of examined samples	No. of +ve samples		Biochemieal ehanges		
		No.	%	G +ve A -ve	G-ve A+ve	G-ve A-ve
Slaughtered quails:						
- Lungs	90	12	13.3	11	9	1
- Air sacs	90	9	10			
Dead quails						
Lungs	40	8	20	5	3	0
Total	220	29	13.18	16	12	1

Table (2): Serotyping identification of Mycoplasma isolates.

Samples	No. of +ve samples	M. gallisepticum		M. gallinarum		Untypable	
		No	%	No	%	No	%
Slaughtered quails:							
- Lungs	12	6	50	4	33.3	2	16.7
- Air sacs	9	5	55.6	4	44.4	0	0
Dead quails							
Lungs	8	4	50	3	37.5	1	12.5

Table (3): Antibiogram for Mycoplasma isolates from quails.

Antibiotics	Antibiotic conc.	M. galisepticum	M. gallinarum
		Sensitivity percentage	
Ciprofloxacin	20 µg	100%	100%
Norfloxacin	20µg	100%	100%
Enrofloxacin	10µg	100%	75%
Spiramycin	30µg	75%	75%
Danofloxacin	30µg	75%	75%
Neomycin	30µg	75%	75%
Tylosine	15µg	75%	50%

الملخص العربي

تمت الدراسة علي مجموعتين من طيور السمان تشمل المجموعة الأولي على عدد ١٨٠ من طيور السمان الحية والمجموعة الثانية من طيور السمان الميتة والتي بلغ عددها ٤٠ ، بالنسبة للمجموعة الأولي تم تقسيمها إلي مجموعتين الأولي وعددها تسعون طيرا تم أخذ منها عينات الرئة والمجموعة الثانية وعددها تسعون أيضا تم أخذ منها عينات الأكياس الهوائية ، وبالنسبة لطيور السمان الميتة (٤٠) تم أخذ منها عينات الرئة .

تم إجراء الفحص البكتريولوجي لعزل الميكويلازما على جميع العينات وقد أسفرت النتائج عن عزل عدد ٢١ عترة ميكويلازما من الطيور الحية ، ٨ عترات ميكويلازما من الطيور الميتة. وباستكمال الدراسة السيرولوجية كانت النتائج وهي ١١ عترة من الميكويلازما جاليسبتكم ، ٨ عترات من الميكوبلازما جالينيرم وذلك من عينات السمان الحي أما بالنسبة للطيور الميتة فتم عزل عدد ٤ عترات من الميكوبلازما جاليستبكم و ٣ عترات من الميكوبلازما جالينيرم .

ومما هو جديد بالذكر أن استكمال الدراسة بإجراء اختبار الحساسية وجد أن العترات المعزولة أظهرت حساسية بالغة إلى بعض المضادات البكتيرية مثل السيبروفلوكساسين ، نورفلوكساسين والانروفلوكساسين ، بينما كانت حساسية هذه العترات متوسطة إلي بعض المضادات مثل السبيروميسين ، الدانوفلوكساسين ، النيومايسين وكذلك التيلوزين .