

ISOLATION AND IDENTIFICATION OF AVIAN MYCOPLASMAS IN SAUDI ARABIA

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INTRODUCTION

Poultry industry is faced during the last years by problems resulting from respiratory infections. Mycoplasmas are reported by several authors to cause considerable economic losses (Cahalam, 1974).

Stipkovits (1979) pointed out that layers infected with mycoplasmas produce lesser eggs and also showed reduction in the rate of hatchability by 10-15 %.

It is known that avian mycoplasmas nowadays include 19 species, however only 4 species, namely *M. gallisepticum*, *M. synoviae*, *M. meleagridis* and *M. iowae* are reported to be pathogenic (Yamamoto, 1985).

It is however not known which species are prevalent among poultry in the kingdom, therefore the aim of the present work was to elucidate the incidence of mycoplasmas in poultry in various different farms in the kingdom.

MATERIAL AND METHODS

Chickens of different ages (less than one month and up to 10 months) were collected from 7 farms in the Eastern Province. A total of 457 samples of the internal organs, namely, the lungs, trachea, air sacs, liver, spleen, kidneys, heart, gizzard, caecum cloaca, ovaria, testes and joints of 95 chickens, were collected aseptically and inoculated into broth and on solid

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media according to the method described by El-Ebeedy (1973) biochemically. The isolates recovered were purified and identified by the digitonin sensitivity, glucose fermentation, arginine decarboxilation, tetrazolium reduction, filure and spot and serologically by growth inhibition and precipitation tests and metabolic inhibition test (Freundt et al., 1973, El-Ebeedy, 1976, Stipkovits, 1979).

RESULTS

As shown in Table 1, it is clear that 13% of chicken harboured mycoplasmas 60 mycoplasma isolates could be recovered. The highest incidence (46.6 %) was recorded in the lung samples, followed by the trachea (36.6 %), air sacs (10%) and ovaries (6.6 %).

From the lung samples the 28 isolates were identified as *M. gallinaceum* (13), *M. gallopavonis* (4), *M. gallinarum* (4), *M. iowae* (2) and 5 unidentified isolates. From the trachae only *M. gallinaceum* (13) and *M. gallopavonis* (4) in addition to unidentified strains (5). The same species isolated from the lungs were also recovered from the air sac. The only identified isolate recovered from the ovaries was *M. gallinaceum*.

On the whole 30 out of the 60 isolates were identified as *M. gallinaceum*, 10 were *M. gallopavonis*, 5 were *M. gallinarum* and 3 were *M. iowae*. However $\frac{1}{5}$ of the isolates could not be identified.

DISCUSSION

It is clear that 50 % of the mycoplasma isolates were *M. gallinaceum*. A result which is in agreement with reports of Tiong et al. (1979) and Bencina et al., (1987).

On the other hand, it is worthy to mention that it is unusual to isolate *M. gallopavonis* from chickens as it

Table (1.): Identification of mycoplasmas isolated from various sites in chickens.

Recovery Sites	Number of positive	* %	Species identification and number of isolates	** %
Trachea	22	36.66	<u>M. gallinaceum</u> (13)	59.09
			<u>M. gallopavonis</u> (4)	18.18
			Unidentified (5)	22.73
Lung	28	46.66	<u>M. gallinaceum</u> (13)	46.43
			<u>M. gallopavonis</u> (4)	14.29
			<u>M. gallinarum</u> (4)	14.29
			<u>M. iowae</u> (2)	7.14
			Unidentified (5)	17.86
Air sac	6	10.0	<u>M. gallinaceum</u> (1)	16.67
			<u>M. gallopavonis</u> (2)	33.33
			<u>M. gallinarum</u> (1)	16.67
			<u>M. iowae</u> (1)	16.67
			Unidentified (1)	16.67
Ovary	4	6.66	<u>M. gallinaceum</u> (3)	75.00
			Unidentified (1)	25.00
Total	60		(60)	

* Percentage compared with total positive

** Percentage compared with number positive

is a turkey mycoplasma: As far as the available literature this species has not been isolated from birds other than turkeys. (Amin and Jordan, 1978).
 has been isolated from different species of poultry (Amin, 1977, Stipkovits, 1979 and Harbi et al., 1982). Although the usual host for *M. iowae* is turkey; this species could be recovered in the present work from chickens. This substantiates the work of Bencina et al. (1987).

It is worthy to mention that out of the isolated species. *M. gallinarum* and *M. iowae* may be pathogenic. Recently Bradbury and Ideris (1988) have pointed out that *M. iowae* caused diseases, particularly in turkeys. Moreover, Jordan (1985) and Yamamoto (1985) have underlined the role of *M. gallinarum* in poultry disease under certain conditions. It is however necessary to carry out further studies to evaluate the role of mycoplasmas in poultry diseases.

SUMMARY

A total of 60 isolates of mycoplasmas could be isolated from 457 samples collected from 95 chicken from 7 farms in the Eastern Province of Saudi Arabia. The isolates were identified as *M. gallinaceum* (30), *M. gallopavonis* (10), *M. gallinarum* (5), *M. iowae* (3) and 12 as unidentified *M.* species.

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