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SEROLOGICAL STUDY ON THE PREVALENCE OF *MYCOMPLASMA GALLISEPTICUM* IN BROILER

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SUMMARY

Both rapid serum plate agglutination test (RSPT) and Haemagglutination Inhibition test (HIT) were utilized in this study.

Serological data are presented for 244 blood that were collected and examined for the detection of *Mycomplasma gallisepticum* antibodies from 25 to 39 days old broiler chicks. 55.6% of the samples reacted positively by using RSPT while 36.9% of the samples reacted positively by using HIT. From results obtained in this study it would appear that the sensitivity of RSPT and HIT is unequal.

INTRODUCTION

Mycomplasmas are associated primarily with respiratory diseases of chickens and turkeys (1). *Mycomplasma gallisepticum* (M.G) is the causative agent of chronic respiratory disease (2). Mycoplasma infection of poultry has an important economical role, the losses due to Mycomplasmosis varied very much depending on environmental conditions. Mortality due to clinical Mycomplasmosis was approximately 1-5%, besides the meat and egg production of clinically healthy but infected bird is also lowered (5-7%) in comparison to that of pathogenic mycoplasma free bird (3).

Several serological tests have been used to detect

antibodies against avian Mycomplasmas, but the most commonly used procedures are the rapid serum plate agglutination test (RSPT), tube agglutination test and the Haemagglutination inhibition test (HIT) (4,5). The (RSPT) was described by Alder (6) and was subsequently used by other investigator's (2). The (HIT) has been used to dected antibodies against M.G. in chickens and turkeys (7).

The work reported herein was done to study the prevalence of M.G infection in broiler chicks using both RSPT and HIT.

MATERIALS AND METHODS

Both RSPT and HIT antigens for M.G (P.G. 31 strain) with expiration date to the end of 1987, were received from Bucharest Pasteur institute.

From 21 broiler farms located around the borders of Baghdad city, 244 blood samples were collected and examined for the detection of (M.G.) antibodies over one year period from 1986 to 1987.

The work was carried out in the college of Vet. Medicine, and the sera were prepared as described by Beard (8).

The RSPT was carried out by mixing approximately 0.02 ml of unknown serum with 0.03 ml of (M.G.) stained antigen on glass plate and the plate was rotated for 5 sec., 1 min., and 2 min. at room temperature (9).

The HIT was carried out as recommended by the USDA (10). Four Haemagglutination units (4 HAU) were used and in each of them 0.5 ml of antigen , 0.5 ml of washed chickens erythrocytes (0.5%) and normal saline as diluent added.

Interpretation Of The Tests Used:

RSPT: The positive reaction is indicated by a definite clumping at the periphery by one minute and is completed in two minutes (9,10).

HIT: Blood samples showing HIT titres > 1:40 are considered positive (9,10).

Samples reacted positively with (RSPT) were tested by (HIT) only.

RESULTS

Out of the total 244 blood samples examined from broiler chicks, only 138 samples (56.6%) reacted positively when using RSPT. Out of the total 138 positive sera, only 90 samples reacted positively by HIT i.e 36.9% of total samples and 65.2% of the reacted samples positively to RSPT (table 1). Results shown in table -1

Table 1: Comparison of the RSPT and HIT in 21 broiler farms.

Flock No.	Age (days)	Samples	RSPT	HIT	Clinical Resp. Sign
1	26	10	7:10	5:7	+
2	28	14	6:14	5:6	+
3	25	13	5:13	4:5	-
4	28	10	7:10	4:7	-
5	25	9	3:9	0:3	-
6	35	12	10:12	8:10	+
7	35	12	6:11	4:6	+
8	32	13	5:13	3:5	+
9	29	15	8:15	6:8	+
10	28	8	7:8	4:7	+
11	32	13	11:13	7:11	+
12	25	9	4:9	3:4	+
13	27	14	8:14	5:8	+
14	25	12	2:12	1:12	-
15	26	9	8:9	3:8	+
16	35	7	4:7	4:4	+
17	37	16	9:16	6:9	+
18	33	13	7:13	3:7	-
19	29	10	6:10	5:6	-
20	30	15	11:15	9:11	+
21	39	11	4:11	1:4	+
total		244	138	90	
%			56.6%	36.9%	

showed that six flocks were without any clinical respiratory signs but reacted positively to both RSPT and HIT.

Data in table 2 indicate that out of 138 samples reacted positively with RSPT, only 90 samples (65.2%) showing HIT titre that ranged between 1:80-1:1280 were considered as positive reactors while 30 samples (21.7%) showing HIT titres of 1:20 were considered as negative reactors and 18 samples (13.04%) showing HIT titre of 1:40 were considered as negative reactors and these were neglected .

Table 2: Titre interval of M.G antibodies prevalence by (HIT)

Antibodies	1:20	1:40	1:80	1:160	1:320	1:640	1:1280
Samples	30	18	31	29	20	8	2
Results	-	-	+	+	+	+	+
Total	48			90			
%	21.7	13.04		65.2			

DISCUSSION

The RSPT and HIT were found to posses different accuracy and precision and the variations among results of RSPT and HIT in the prevalence of (M.G.) reactors is attributed to many factors that were reported by several researchers (1,5,11,12). However, from results obtained in this study it would appear that HIT is more specific to M.G prevalence.

It is possible to get positive reactors to M.G using HIT in farms birds of which are not showing any clinical respiratory signs and such obtained results are in agreement with what has been mentioned by Yoder (9).

An Alternative and possibly more realistic explanation

for getting high titres of antibodies to M.G. in HIT from so many samples (30:90) may be due to the fact that this research is a field study. The positive results (36.9%) with (HIT) can not be compared with the results obtained by Mozan (13) who found 52.57% positive with (HIT). Since he has worked on both layer and broiler chickens of different ages.

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دراسة مصلية حول انتشار المايكوبلازما كاليسبتكم في افراخ اللحم

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الخلاصة

تم جمع ٢٤٤ نموذج دم من حقول افراخ دجاج لحم باعمار بين ٢٥-٣٩ يوم. وذلك لتحديد مدى انتشار الاجسام المناعية المضادة للمايكوبلازما كاليسبتكم وقد استخدم اختباري التلازن المصلي السريع على الشريحة واختبار اثباط تلازن كريات الدم الحمراء وظهر بأن ٥٦ر٦٪ من النماذج كانت ايجابية للاختبار الاول و ٣٦ر٩٪ من النماذج ايجابية للاختبار الثاني. كما وان النتائج اظهرت حساسية اختبار التلازن المصلي السريع ونوعية اختبار اثباط التلازن كما وبينت الدراسة مدى انتشار الاجسام المناعية المضادة للاصابة بالمايكوبلازما كاليسبتكم. هذه الدراسة توضح مدى انتشار المايكوبلازما كاليسبتكم في القطر في افراخ اللحم.