SEROLOGICAL SURVEY ON *Mycoplasma gallisepticum* BY HAEMAGGLUTINATION INHIBITION TEST IN CHICKENS RAISED IN BOGOR AND TANGERANG DISTRICTS

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SUMMARY

Total of 88 sera from native, layer/briiler chickens in Bogor and Tangerang were tested for antibody titer to *Mycoplasma gallisepticum* by Haemagglutination Inhibition (HI) test. When more than 1 : 40 of HI titer was designated as positive, 39 of 61 sera from native chickens were positive (63.9%). In the 27 sera from layer/broiler chickens, on the other hand, 22 of them were positive (81.5%). These results indicated that positive rate in the layer/broiler chickens were considered to be statisticaly higher than those in native chickens ($P<0.01$).

INTRODUCTION

Mycoplasma gallisepticum (Mg) is a common pathogen which causes a chronic respiratory diseases in chicken and turkey, resulting in severe economic losses, reduced weight gain and lessned feed efficiency in broilers and decreased egg production in layers (Talkington, et al., 1984). In Indonesia, prevalence of Avian Mycoplasmosis has become a major problem in the aspect of animal hygiene. However, there were few reports about incidence of Mg infection.

The serum plate agglutination (SPA) test and the Haemagglutination Inhibition (HI) test are commonly used for serological diagnosis of this disease (Kuniyasu and Ando, 1966). The HI test was first described by Van Herick and Eaton. Its usefulness for the detection of Mg infection in chickens and turkey flocks was demonstrated (Van Herick and Eaton, 1945).

Consequently, the present study was undertaken to elucidate the epidemiological features of this diseases in Bogor and Tangerang by using HI test.

MATERIALS AND METHODS

Preparation of antigen

Antigen of Mg was kindly supplied by Dr. M. Nakamura of National Veterinary Assay Laboratory, Japan. The antigen of Mg was prepared as follows PPLO broth (Eiken Co. Ltd.) which supplemented 10% horse serum and 1,000 units/ml of penicillin G was used for propagation of this organism. Strain R—980 was incubated into 10 ml of PPLO broth at 37°C for 16—24 hours. All the cultured broth was transfered into 100 ml of PPLO broth and incubated at 37°C until pH of media decreased to 6.8. Then, all the cultured broth was retransfered into 100 ml of PPLO broth and incubated at 37°C for 40—48 hours. The cultured broth was harvested by centrifugation at 16,000 rpm for 20 minutes and resuspended in 10 ml of phosphate buffered saline (PBS) added 10 ml of glycerin.

Red Blood Cells (RBC)

Heparinized fresh blood were collected from 2 or 3 chickens mixed, and then were washed three times with PBS by centrifugation at 2,000 rpm for 10 minutes, and finally packed cells were resuspended in 0.25% with PBS.

Sera

The Sera were collected from native chickens in 1988, layer/broiler chickens in 1987 in Bogor and Tangerang.

HA and HI

HA and HI tests were carried out by microtiter system (Dynatec Co. Ltd).

In the HA test, antigen was diluted with two-fold serial dilution in 0.05 ml of PBS. The same amount of 0.25% of RBC was added and kept at room temperature for 2 hours. The highest dilution showing completely agglutination was designated as one unit.

In the HI test, 0.025 ml of antigen con-

taining 4 units was mixed with the same amount of 0.25% of RBC was added and kept at room temperature for 2 hours. The reciprocal of the highest dilution of serum showing completely inhibition of agglutination was designated as HI titer. The HI titer of 40 or greater was recorded as positive (Avakian et al., 1988).

RESULTS

Table 1 showed the distribution of HI antibody against Mg in native chickens. Positive reaction was demonstrated in 63.9% of native chickens in Bogor and Tangerang districts. The positive rate in Bogor district was 68.4% and in Tangerang district was 56.5%.

The average positive rate in layer/broiler chickens was 81.5%. The positive rate of Bogor district was 69.0% and that of Tangerang district was 100% (Table 2).

DISCUSSION

With HI test, the result was obtained that positive rate against Mg antibodies was 68.4% in native chickens of Tangerang district and 56.5% from Bogor district. Since the native chickens had no experience of Mg vaccine, it is considered that natural infection was cause for this result.

Mean while for the layer/broiler chickens, positive rate of Bogor district was 69.0% and that of Tangerang district was 100%. It was suspected that the positive rate which showed the high percentage was caused by Mg vaccination.

Siti M. (1990) reported that using tube agglutination test, the positive rate of native chickens were 2.3% in Bogor district and 6.0% in Tangerang district and layer/broiler chickens were 25% in Bogor district. From comparison with both results. it can be concluded that the positive rate by using HI test higher than tube agglutination test.

Futher survey is necessary to elucidate whether high titer of antibody against Mg in layer/broiler chickens was derived from vaccination or natural infection.

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Table 1. Distribution of HI titer against *Mycoplasma gallisepticum* in the native chickens

Location	HI titer						Positive rate (%)
	<10	10	20	40	160	160	
Bogor	5*	4	3	8	15	3	68.4
Tangerang	2	1	7	5	5	3	56.5
Total	7	5	10	13	20	6	63.9

*No. of sera showing initial HI titer.

Table 2. Distribution of HI titer against *Mycoplasma gallisepticum* in the layer/broiler chickens

Location	HI titer							Positive rate (%)
	<10	10	20	40	80	160	320	
Bogor	4*	1	0	2	6	2	1	69.0
Tangerang	0	0	0	2	3	5	1	100.0
Total	4	1	0	4	9	7	2	81.5

*No. of sera showing initial HI titer.

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