Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com

E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2018; 6(3): 613-614

Received: 25-03-2018
Accepted: 26-04-2018

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Detection of seroprevalence of *Mycoplasma gallisepticum* in broiler chicken in Tamil Nadu by ELISA

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Abstract
Mycoplasma gallisepticum (MG) is one of the causative organisms of chronic respiratory disease in poultry. It causes poor weight gain, increase FCR and high mortality in broiler chicken which result in heavy economic loss in broiler industry. In the present research the seroprevalence of *Mycoplasma gallisepticum* (MG) in broiler chickens in the area of Tamil Nadu, India was studied. From 9 broiler farms, 141 sera samples were collected and subjected to indirect ELISA. The overall prevalence of MG was 16.31% in broiler chicken. Among the positive samples, 8 samples (18.18%) from the age of 4 weeks, 3 samples (5.66%) from the age of 5 weeks and 12 samples (27.27%) from the age of 6 weeks were detected respectively. The prevalence of *M. gallisepticum* infection in broiler chicken was documented in this study. So, to control MG infection strict bio security measure has to be followed in the poultry farms.

Keywords: Broiler chicken, *Mycoplasma gallisepticum* Seroprevalence

Introduction
Mycoplasma gallisepticum (MG) is one of the most important pathogen in poultry and also it is the causative agent of chronic respiratory disease in chicken [1]. MG infection causes significant economic losses in the poultry industry due to downgrading of carcasses at slaughter because of airsacculitis, treatment costs and due to its effect on flocks performance [2, 3].Culling the birds by flock testing is the most important control measure for MG infections [4]. Especially eradication of vertically transmitted agents and early detection of new infections is extremely important [5]. Eventhough MG can be diagnosed by culture and biochemical tests, serology is the best method for detection of subclinical MG infection in the flock [6, 7, 8].
In view of the above consideration, the present study was undertaken to determine the seroprevalence of *Mycoplasma gallisepticum* in broiler chicken.

Materials and Methods
From the region of Namakkal, Tamil Nadu a total of 141 broiler birds of 9 farms with the age ranges from 3 to 5 weeks were selected randomly for screening against MG by indirect ELISA. Blood samples were collected aseptically from wing vein of individual birds and then sera were separated and stored at -21 °C until use for the serological study. A commercial MG antigen coated plate (BioChek, UK) was used for the detection of antibody by indirect ELISA test. Based on the manufacturer instruction the ELISA test has been carried out and the S/P ratio was calculated. According to the instruction in the ELISA kit, samples with S/P ratios of ≤0.5 considered as negative and S/P ratios >0.5 considered as positive.

Results and Discussion
The seroprevalence of MG antibody in broiler farms was studied by indirect ELISA (iELISA) test. A total of 141 broiler sera sample were collected from 9 broiler farms and subjected to iELISA from which 23 sera samples were given positive result for MG infection. The results are given in table 1.
From the Table-1, it is evident that the prevalence of MG antibody is high in the broiler of age 5 weeks and low prevalence was noticed in 4 weeks old broiler. And overall prevalence found 16.31% by iELISA for broiler chicken.

Concerning broiler-chickens, 16.31% of the samples are MG infected. This is less than those obtained in Nigeria by orajaka *et al*. [9] with a positivity rate of 64.9%. However our results are in accordance with those obtained in Algeria by Aimeur *et al*. [10] with a positivity rate of 30%. And our results are very close in accordance with a result obtained in India by Reddy [11] with 20.8% positivity.

Table 1: Seroprevalence of MG antibody in broiler farms by iELISA

Age (weeks)	Number of sera tested	No. of positive samples	Positive %	Overall prevalence
3	44	8	18.18	16.31%
4	53	3	5.66	
5	44	12	27.27	

Conclusion

Thus it is evident that *M. gallisepticum* is prevalent in broiler chicken in India. So, it may be suggested to follow strict bio security measures in the poultry farms to control the MG infection.

Acknowledgement

The authors are highly thankful to the Director, Centre for Animal Health Studies, TANUVAS for providing necessary facility for the study.

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