

Short communication

STUDY ON MYCOPLASMA GALLISEPTICUM IN CHICKENS IN SELECTED AREAS OF BANGLADESH

S. R. Barua¹, A. M. Prodhan, S. Islam and S. Chowdhury

Chittagong Veterinary and Animal Sciences University, Pahartali, Chittagong, Bangladesh

ABSTRACT

The present study was aimed to determine the sero-prevalence of *Mycoplasma gallisepticum* in chickens in two selected areas; Lohagara and Satkania Upazila of Chittagong district. The study was conducted from July to October 2004 that was based on Rapid Serum Plate Agglutination (SPA) test. The serological test was done on 400 samples which revealed prevalence of *Mycoplasma gallisepticum* were 53% in broiler and 73% in layer at Lohagara, where as 46% in broiler and 60% in layer at Satkania Upazilla.

Key words: Mycoplasma, seroprevalence, rapid serum plate agglutination

INTRODUCTION

Mycoplasmosis is a chronic and slow spreading contagious disease in birds characterized by obstinate hacking cough, sneezing and tracheal rales (Chakrabarti, 1993). The bacterial concurrent infections may be due to *Escherichia coli*; *Haemophilus paragallinarum* and thus complicate the disease (Amin and Jordean, 1979). This is one of the major avian diseases in Bangladesh which is economically important and emerging problems for rising poultry industry (Prodhan, 2002). It is not a killer disease like Newcastle or Gumboro disease but, in complicated cases, birds may die (Amin and Jordan, 1979). All ages of chickens and turkey are affected but young birds are more susceptible than adults (Nunoya *et al.*, 1995). The economic loss incurs resulting from poor feed conversion ratio (FCR) of broiler, declining of egg production in layer, reduction of hatchability in breeder flock, down-grading of broiler meat and condemnations of carcasses (Carpenter *et al.*, 1982). The disease can transmit both horizontally and vertically and remain in the flock constantly as subclinical form (Bencina *et al.*, 1988). Avian mycoplasmosis may be diagnosed by different methods such as morphology of causal agents; cultural characteristics; physical, biochemical and serological properties (Ley and Yoder, 1997). Serology is the only reliable tools for detecting the subclinical infection in the flock (Prodhan, 2002). In Bangladesh, the sero-prevalence of *M. gallisepticum* was reported to be very scanty being around 19-32% in exotic hybrid chickens (Biswas *et al.*, 1992; Amin *et al.*, 1992).

MATERIALS AND METHODS

Study area and selection of bird

The study was conducted at the commercial farms of Lohagara and Satkania Upazila under Chittagong District from July to October 2004. The research work was carried out at Microbiology Laboratory, Chittagong Govt. Veterinary College, Pahartali, Chittagong. A total 400 chicken, which included 200 broilers and 200 layers, were selected for serological test. Ten layer and ten broiler farms of each Upazilla were selected randomly. Ten birds were selected from each farm randomly.

Blood collection and serum preparation

In live birds, 1-1.5 ml blood were collected from wing vein by using fresh disposable plastic syringe (3-ml) and collected blood was kept in room temperature for about 1-2 hours. A clean straw colour serum was seen around the clotted clump and the serum was poured into a labeled and stored at 4°C until used.

Present address : ¹MS student, Department of Microbiology and Hygiene, BAU, Mymensingh

Serum plate agglutination (SPA) test

The SPA test was conducted with crystal violet stained *M. gallisepticum* commercial antigen obtained from Intervet Company Ltd. (The Netherlands). 0.03 ml antigen and 0.03 ml fresh serum was placed side by side with pipette in a glass plate and mixed well by stirring with glass rod, followed by rocking. Results were read within 2 minutes. In positive cases granules were formed slowly which could be seen during rocking. In the negative case, no such granules were formed. All SPA results were recorded.

RESULTS AND DISCUSSION

A total 400 chicken, which included 200 broilers and 200 layers, were selected for serological test. Sero-prevalence data of mycoplasmosis in chicken was calculated on the basis of broiler and layer chickens. In case of broiler the sero-prevalence was 53 % at Lohagara and 46 % at Satkania (Table 1) where as in case of layer, the sero-prevalence was 73 % at Lohagara and 60% at Satkania respectively (Table 1).

Table 1. Sero-prevalence of *Mycoplasma gallisepticum* in broiler and layer farms in selected area

Birds	Name of Upazila	No. of farms	No. of sera tested	SPA (+) ve	Prevalence (%)	Total (%)	Overall (%)
Broiler	Lohagara	10	100	53	53	49.50	58.00
	Satkania	10	100	46	46		
Layer	Lohagara	10	100	73	73	66.50	
	Satkania	10	100	60	60		

It was observed that the overall sero-prevalence of mycoplasmosis was 49.50 % in broiler and 66.50 % in layer on average 58 % which was higher than that of earlier report 57.15% (Prodhon, 2002) and 13-22% (Biswas *et al.*, 1992; Amin *et al.*, 1992). Several serological tests are available for screening *M. gallisepticum* infection. Of them ELISA, HI and SPA tests have been suggested by OIE (1996) to measure the *M. gallisepticum* antibody in the chicken serum. However, ELISA is more time consuming and costlier than HI and SPA. Sensitivity and specificity of SPA are almost similar to that of HI test (Higgins and Whithear, 1986). Area variation of prevalence of *M. gallisepticum* was observed in the present study. The prevalence of Mycoplasmosis in Lohagara Upazila was relatively higher than Satkania Upazila. This variation was occurred due to variation of management practices, treatment, maintenance of biosecurity etc. It is suggested that proper management practices and improvement of biosecurity should be properly managed for controlling of Mycoplasma infection.

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