



International Journal of Current Trends in Pharmaceutical Research
IJCTPR, 2013: Vol. 1(3): 215-216

Gel Electrophoresis of Protein fractions of *Salmonella* spp. Isolated from Poultry: an Editorial

Subha Ganguly*

AICRP on Post Harvest Technology (ICAR), Department of Fish Processing Technology,
Faculty of Fishery Sciences, West Bengal University of Animal and Fishery Sciences, Kolkata, WB, India

*E-mail: ganguly38@gmail.com

Abstract

SDS-PAGE technique is employed for differential diagnosis of *Salmonella* Gallinarum and *S. Pullorum* using serum biochemical parameters were reported. The antibody response remains active during the course of infection with *S. Gallinarum* in infected chickens. The present article indicates the necessity of effective vaccine against Fowl typhoid which would stimulate the immune system of the affected birds positively.

Key words: Chickens, *Salmonella* Gallinarum, *S. Pullorum*

Introduction

Fowl typhoid is a septicemic contagious bacterial disease of domestic birds with acute and chronic courses and mortality varying from moderate to high depending upon the strain of the causative bacterium i.e. *Salmonella* Gallinarum which might cause change in serum protein constituents. Early detection of the disease outbreaks using serum biochemical parameters may help in quick and accurate diagnosis and disease monitoring. Fowl typhoid affects almost the entire flock within short period causing severe economic losses to poultry farm owners due to complete depopulation of the affected flocks^[1].

Researches carried out and comments with interpretations

Polypeptide characterization by SDS-PAGE is done. Prasad et al.⁵ showed the molecular weights as per 11 protein bands and their molecular weights ranged between 12-70 Kd. All 11 protein bands were prominent in both strains of *S. Gallinarum* where in the case of *S. Pullorum*, only 6 bands were recorded^[2]. Mean serum globulin values were measured at weekly intervals showed that the concentration of globulin in serum of infected chickens showed significantly ($P < 0.01$) different age dependent increasing trend when measured on days 14, 21 and 28 post-infection as compared to the control.^[2] A : G ratio is found to decrease significantly ($P < 0'$) with age.

IgG quantitative estimation indicated difference between infected and control groups. The concentration increased approximately double-fold in infected group with highest value on 28th day post-infection^[2]. Investigation as carried out by Prasad et al.² for differentiating *S. Gallinarum* from *S. Pullorum* by SDS-PAGE technique yielded results similar to those of Dutta^[3] and Willcox et al^[4]. Iotova^[5] who recorded the similar findings in Leghorn, Cornish and White Plymouth rock fowls orally infected with *S. Gallinarum* at 10 weeks of age. Ross et al.^[6] observed the values for serum albumen examined in control group decreased with age when compared to values of total protein. Similar results were recorded by Iotova⁵ for serum globulin levels, but the albumen-globulin ratio was recorded lower than in their respective controls in the post-infection period. The presence of IHA antibody titer in *S. Gallinarum* infection in chickens, if present lead to inference that IHA test is more sensitive than plate and serum agglutination tests for the diagnosis of *S. Gallinarum* infection as reported by Istanbuluglu and Arda^[7]. Further, Padmanabhan et al^[8] and Prasad et al.^[9] reported IgG level to increase in infected than control chicks.

Conclusion

The present article presents a thorough and elaborate discussion and concerted review on the characterization of polypeptides of standard *Salmonella* Gallinarum and *S. Pullorum* culture by SDS-PAGE technique for making its possible use in differential diagnosis. The fowl typhoid infection in chicken also modulates the serum protein profile thereby generating the antibody response.

References

1. Prasad A, Soman JP, Ganguly S. Fowl Typhoid. *Formerly* VDM Verlag Dr. Müller GmbH & Co. KG (*now Company profile changed to AV Akademikerverlag*). 2011,ISBN 978-3-639-37564-0.
2. Prasad A, Soman JP, Tiwary BK, Ganguly S. *Salmonella* Gallinarum infection in chicken modulates serum protein profile. Indian J. Poult. Sci. 2013,In Press.
3. Dutta S. Studies on pox disease of sheep and goats with special reference to the differential diagnosis and host range determination of goat pox virus. 1989,MVSc Thesis Birsa Agricultural University, Ranchi, India.
4. Willcox MDP, Wyatt JE, Handley PS. A comparison of the adhesive properties and surface ultra-structure of the fibrillar *Streptococcus sanguis* 12 and an adhesion deficient and non-fibrillar mutant 12. Journal of Applied Bacteriology. 1989,66: 291-99.
5. Iotova, I. Serum protein pattern of fowl with reference to their resistance to *S. gallinarum* infection and the relationship between globulin values and antibody formation. Veterinary Bulletin. 1982,53: 4133.
6. Ross JC, Chistic C, Halliday WG, Jones RM. Determination of hematology and blood chemistry values to hybrid 6 weeks old broiler hybrids. Avian Pathology. 1976,5: 272-81.
7. Istanbuloglu E, Arda M. Indirect haemagglutination test for the diagnosis of *S. gallinarum* infection in fowls, comparison with plate and serum agglutination tests. Veterinary Bulletin. 1979,50: 8001.
8. Padmanabhan VD, Mittal KR, Gupta BR. Cross protection against FT: Immunization trials and humoral immune response. Developmental and Comparative Immunology. 1981,5: 301-12.
9. Prasad, A, Soman, J.P., Tiwary, B.K. and Ganguly, S. Evaluation of immune response of broiler chicks against *Salmonella* Gallinarum infection. Indian J. Anim. Sci. 2010,81(6): 578-81.