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response relationship and the effects of autonomic blocking agents were as follows.

The vagus nerve which innervates to the crop, proventriculus and gizzard, and the periarterial nerves of the coeliac artery which innervate to the last two stomachs seem to contain both excitatory and inhibitory nerve fibres, respectively. These excitatory fibres were mainly cholinergic in nature. However, in most experiments, atropine-resistant contractions were also seen in response to the stimulation of both nerves. Such contraction caused by periarterial nerve stimulation may possibly be adrenergic in origin.

The inhibitory fibre in the periarterial nerves to the proventriculus may be adrenergic, whereas those in the vagus were probably of non-adrenergic in nature. The relaxation of the proventriculus in response to vagal stimulation may be partially elicited through the cholinergic ganglionic synapse.

### **A STUDY OF THE AGAR GEL DIFFUSION TEST ON *MYCOPLASMA GALLISEPTICUM***

Akira SHIMIZU

*Department of Epizootiology  
Faculty of Veterinary Medicine  
Hokkaido University, Sapporo, Japan*

The author conducted research into the agar gel diffusion reaction between *Mycoplasma gallisepticum* (MG) antigens, extracted by sonication, and anti-MG rabbit serums, under different conditions, and also investigated antigenic relationships among 27 strains. Characteristics of agglutinating, HI or precipitating antibody in immune rabbit serums were also investigated.

The results of this study are summarized as follows:

1) Repeat test by gel diffusion did not always give similar results with the same lot of antigen and its antiserum. Increase or decrease in the number of precipitation lines was limited to one line.

2) MG antigens which had about 1.0 mg/ml protein concentration, formed 4 precipitation lines. When the antigens were diluted 2 or 4 times, 1 or 2 of the lines disappeared, and the antigens diluted 16~32 times formed no line.

3) Serums of rabbits injected with MG (S<sub>6</sub> strain) gave 3 precipitation lines about 3 weeks after the onset of the injection. Five lines were observed after about 6 weeks. The number of the lines increased, parallel with agglutinating and HI antibody titers. These three antibodies appeared to be 2-mercaptoethanol resistant.

4) In spite of the use of the same preparation procedure, the resulting precipitation antigens of 27 MG strains varied widely, sometimes about 10 times, in their protein concentrations.

5) The number of precipitation lines varied from 2 to 5 depending on the strains used. The variation was due to the difference of protein concentration rather than that of the strains. At least 2 antigen components were identified among 27 strains.

6) Three strains ( $S_6$ , KP-13 & PG-31) were employed for cross tests by gel diffusion. At least 3 common antigen components were observed among them. With an antiserum ( $S_6$ ), these strains formed 5 precipitation lines ( $S_6$  & KP-13) or 4 (PG-31). Thus, under suitable conditions, 5 lines were obtained in the gel diffusion test. There seems to be some difference in antigen components among strains.

7) The gel diffusion test was less valuable as a diagnostic procedure of CRD, compared with agglutination or HI test.