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**IMMUNOLOGICAL STUDY OF *MYCOPLASMA GALLISEPTICUM*,  
ESPECIALLY BY THE AGAR GEL DIFFUSION TEST  
PRELIMINARY REPORT**

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(Summary of Masters thesis written under direction of Dr. S. MIURA)

In this study several kinds of antigens were prepared from Mycoplasma organisms by freezing and thawing the organisms. *Mycoplasma gallisepticum* (4 strains), *M. gallinarum* (1), *M. iners* (1), *M. laidlawii* (2), and *M. meleagridis* were used for the antigen preparation. However, the antisera were produced by the injection of rabbits with the organisms of 3 strains of *M. gallisepticum*.

The effects of centrifugation and heating of the antigens on the precipitation and complement fixing reactions were checked. The antigens were, thereafter, used for immunological studies of Mycoplasma organisms by the gel diffusion test.

The results of this work are summarized as follows:

- 1) The antigens of *M. gallisepticum* formed 2 or 5 precipitin lines between the antisera.
- 2) Complement fixing activity was observed in the antigens of *M. gallisepticum*. Heating of the antigens at 50°C for 10~30 minutes was effective enough to destroy the anti-complementary activity for the antigens.
- 3) Heating of the antigens at 70°C for 10 minutes or more diminished evidently, or destroyed the antigenicity in both precipitation and complement fixation. However, centrifugation at 110,800 G for one hour did not reduce the precipitation activity of antigens.
- 4) Three strains of *M. gallisepticum* had common precipitin antigens.
- 5) In *M. gallisepticum*, no precipitin antigen common to the other types was found.
- 6) Partial fractions of cytoplasm and cell membrane of *M. gallisepticum* revealed 3 and 2 lines respectively. The middle line of the formers joined one of the latters. The other lines, however, crossed each other.
- 7) Hemagglutinin (HA) antigen of *M. gallisepticum* was not detected in the cytoplasmic fraction. HA antigen could not, moreover, be separated from the cell membrane by repeated (20 times) procedures of freezing and thawing.
- 8) Some serum samples of CRD infected chickens produced one or two precipitin lines between the antigens of *M. gallisepticum*.