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<th>IMMUNOLOGICAL STUDY OF AVIAN MYCOPLASMA, ESPECIALLY IDENTIFICATION OF MYCOPLASMS</th>
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Summary of the study: The study aimed to investigate the immunological characteristics of avian mycoplasmas, focusing on the development of diagnostic and identification methods. The research was conducted using agar gel diffusion tests, which proved effective in distinguishing different mycoplasma strains. The results were supported by comprehensive analysis and comparison with existing literature.
Chemical and histochemical examinations for detection of arsenic and fluorine were unable to indicate positive results in both of the cow and mice.

The following pathological features were inferred as "predisposing factors" in the morphological sense: 1) A considerable part of the process of nervous disturbances (polyneuropathy), 2) A considerable part of the process of microvascular alteration, and 3) A part of the ulceration in the forestomach and abomasm and a part of the myopathic process in the striated and smooth muscles.

A view of such "predisposing factors" may give a certain suggestion to the interpretation of pathological features in naturally occurring cases of various poisonings.

IMMUNOLOGICAL STUDY OF AVIAN MYCOPLASMA, ESPECIALLY IDENTIFICATION OF MYCOPLASMS AGAR GEL DIFFUSION TEST

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

I used tube agglutination, growth inhibition and gel diffusion test to determine the serological relationships between *Mycoplasma gallisepticum* (strain S6), *M. gallinarum* (GP 16), *M. iners* (PG 30), *M. laidlawii* A (PG 8) and *M. laidlawii* B (PG 10). In addition, I classified 30 strains of mycoplasma by using their biological and serological characteristics. These strains were isolated from diseased chickens showing clinical signs of CRD and reacting positively to the slide agglutination test.

The following is a summary of the results of my study:

1) *M. gallisepticum* was distinct from other mycoplasmas in serological characteristics.

2) *M. gallinarum* and *M. iners* showed unilateral cross reaction in agglutination and growth inhibition tests, and they had two common precipitation lines. However, they were distinguishable in their biological characteristics by their ability to reduce tetrazolium.

3) I observed no serological relationships between *M. laidlawii* (A & B) and other types of mycoplasma employed in this study.

4) On the other hand, the two types of *M. laidlawii* (A & B) have close bilateral cross reactions in their agglutination and growth inhibition tests, at
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relatively high dilution. I also found they had at least three common precipitation
lines in gel diffusion test.
5) In studying these 30 strains of mycoplasmas I found that their biological
activity varied widely, especially the carbohydrate fermentation tests depending
on methods used.
6) The thirty strains of mycoplasma isolated from chickens showing signs
of CRD were classified into four groups by the gel diffusion test. Three strains
of these organisms belong to *M. gallisepticum*, five to *M. gallinarum*, and one
to *M. iners*. However, the remaining strains did not form any distinct precipi-
tation lines with the mycoplasms antisera.

**CLINICAL AND HEMATOLOGICAL OBSERVATIONS**

**OF MORPHINE-PENTOBARBITAL ANESTHESIA IN DOGS**

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(Summary of Master's thesis written under direction of Dr. T. SAKAI)

This experiment was carried out to establish the anesthetic effects of Sodium
Pentobarbital (Nembutal) combined with morphine in dogs. We carried out our
study in three phases:

1) We premedicated dogs with morphine administered intravenously (1 mg,
3 mg and 6 mg per kg of body weight) and recorded our clinical observations and
hematological findings (leucocyte count, eosinophil count and acid-base balance).

2) We administered Nembutal intravenous to dogs (8 mg, 16 mg, 20 mg and
25 mg per kg of body weight) and recorded our clinical observations and hema-
tological findings.

3) We used a morphine-Nembutal combination (1 mg/kg of morphine given
about 20-25 minutes before and 8 mg, 16 mg, 20 mg and 25 mg/kg of Nembutal)
and recorded our findings as before.

A summary of the results follows:

1) Judging from a clinical point of view better results were achieved using
1 mg/kg of morphine as a preanesthetic than using 3 mg/kg or 6 mg/kg.

2) Considerable variation was seen in the hematological observations of the
group using just Nembutal whereas with the combination of morphine and
Nembutal the results were constant.

3) The morphine-Nembutal combination achieved about twice the anesthetic