

Chapter 1



Introduction

Fowl cholera is one of the major disease to attack avians. It has been recognized and studied for almost 200 years, but still remains an important and poorly controlled disease affecting poultry. In Thailand, fowl cholera is also an infectious disease that affects animals of economic importance, especially ducks. Duck cholera is the causes of a high mortality rate among ducks. An acute attack by this disease can result in a quick death for the individual bird and the rapid spread of the disease throughout the flock. Prevention of Duck cholera can be effectively controlled by vaccination rather than by medication or good sanitation.

Up to the present time the value of fowl cholera vaccine in preventing the disease in ducks has not been satisfactorily assessed. The vaccine is still not truly effective and only provides a short duration of immunity especially when compared with other animal vaccines. Several vaccinations are necessary which may cause stress in ducks and a drop in their egg production.

Two types of killed vaccines are used in Thailand. The first vaccine, a formalinized broth vaccine prepared from Pasteurella multocida serotype 8:A, is prepared by

Department of Livestock Development, which comes under the jurisdiction of the Ministry of Agriculture and Cooperatives. The other type, prepared by a foreign private firms, is an emulsified vaccine containing serotypes 1,3 and 4. This latter vaccine is recommended for use in chickens and turkeys.

Studies designed to improve the efficacy of fowl cholera vaccine in ducks are very few. Hilbert and Tax (1) reported that formalin-inactivated broth vaccine provided excellent control in the field, but Dougherty (2) described only a marginal efficacy in the laboratory experiments. Layton (3) reported that the immunization of 6-week-old ducklings with oil-emulsified broth vaccine induced strong immunity, though it is lasted for only 8 weeks whereas turkeys (28 weeks old) and chickens (12 weeks old) developed immunity which persisted for 21 and 54 weeks respectively. This indicated that the duration of the protection in duck is very short.

Adjuvants have been used to improve the efficacy of the vaccine, such as the use of light mineral oil in water-in-oil emulsified vaccine for enhancing and prolonging antibody production which was developed by Freund (5)

Studies by Chute, O'Mera and Gershman (6), Heddleston and Reisinger (4) Heddleston and Hall(7), Saitanu et al. (8) and Laorpaksa et al. (9) have shown that mineral-oil adjuvant is capable of producing a high degree of immunity against

fowl cholera over a long period.

Heddleston and Robert (10) demonstrated that aluminium hydroxide gel used as an adjuvant was able to produce an effective immunity to fowl cholera in chickens for at least 52 weeks and it also had the advantage of the simplicity of the production of the vaccine.

The objectives of this research are :

- 1) to determine the immunity and serum antibody level in ducks vaccinated with various types of duck cholera vaccines
- 2) to compare four different treated antigens for detection of agglutinating antibody
- 3) to compare the tube agglutination titer with the indirect hemagglutination Titer.
- 4) to evaluate the correlation of protective immunity and antibody level.