FACTORS AFFECTING THE PATHOGENESIS OF *EIMERIA NECATRIX* INFECTIONS IN CHICKENS

A Thesis

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ABSTRACT

Eimeria necatrix infection in chickens is accompanied by severe hemorrhagic enteritis, particularly during the maturation of second generation schizonts. Massive heterophil infiltration accompanies the early development of this stage of the life cycle. In addition, crypt epithelial cells harbouring second generation schizonts undergo morphological and functional changes such as, loss of microvilli, and the acquiring of phagocytic activity. Infected cells produce a large amount of a diffusable antigen which cross-reacts with antigens of oocysts and second generation merozoites. It is possible that such antigen(s) plays a role in inflammation.

Peripheral blood leucocyte response was studied in relation to the dose of oocysts inoculated. Eosinophilia was observed during the development of the sexual stages. Eosinophilia is rarely reported in coccidial infections.

Intraperitoneal injection of several individual irritants was found to prolong the prepatent period of *E. necatrix*. However, BCG and *Propionibacterium acnes* did not protect chickens against *E. necatrix* infection. The prolongation of the life cycle of *E. necatrix* was related to the effect of the intraperitoneal injection on the transport of merozoites from villous epithelial cells to the crypt. Electron microscopic examination revealed that sporozoites were transported by intraepithelial lymphocytes and not by macrophages as previously reported.

To: My wife Raja for her patience and support,

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