HUMORAL IMMUNE RESPONSE TO CHALLENGE BY FASCIOLA GIGANTICA ANTIGENS IN RABBITS

Thesis

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Summary

Early and accurate diagnosis of *Fasciola* infection plays an essential role in designing a complete control plane for the disease. The present study aimed to select the most specific *Fasciola* antigen from three tested antigens; crude, excretory-secretory (E/S) and egg antigens.

In the present study the three tested antigens were prepared and used in vaccination of three separate groups of rabbits. Each group was vaccinated with one type of the antigens. The levels of produced antibodies in their sera were evaluated versus each antigen at different weeks post vaccination using ELISA test. The level of cross-reaction with other antigens was evaluated at different serum dilutions.

The results of the present study showed that E/S antigen was the most specific antigen as the E/S antibodies produced in the sera of rabbits after vaccination with E/S antigen were the least in cross-reaction. Despite, crude antibodies produced in the sera of rabbits vaccinated with crude antigen made the highest level of cross-reaction, crude antigen was considered the most sensitive antigen because it gave the highest antibody response. More over, egg antigen cross-reacted with the other two antigens and gave the least mean ELISA O.D. values. Therefore, E/S antigen was considered the most immunogenic antigen that can stimulate the immune response specifically.

As regards, the kinetics of immune response, the antibody levels in the sera of vaccinated animals began to increase to the positive values as early as the second week post vaccination at serum dilutions (1/50, 1/100, 1/200) versus the same antigen used in vaccination. This was the rule with the three antigens used in vaccination of the three groups of rabbits.

The mean ELISA O.D. values increased gradually from the second weeks post vaccination to a maximum level in the fourth week then declined gradually till the sixth week post vaccination. This finding was true for all groups of vaccinated rabbits and with the three tested antigens.

The results of the present study showed that serum dilutions 1/50 and 1/100 gave false positive results with serum samples of rabbits vaccinated with E/S and egg antigens. Hence, in these cases the dilution of 1/200 was the optimum. Serum samples taken from the group of rabbits vaccinated with crude antigen gave false positive cross-reacting results until serum dilution 1/200. Therefore, the optimum dilution used was 1/400. The results pointed to the importance of choosing the correct serum dilution for ELISA test. This may help to eliminate the possibility of cross-reactivity. Samples that are truly positive would remain positive in high dilutions. However, too diluted serum decreased the antibody level leading to weak antigen-antibody reaction and consequently decreased mean ELISA O.D. values.