

Development and Evaluation of *Eimeria Tenella* (Indigenous/Local Strain) Vaccine(S) against Coccidiosis in Chickens

Mian Abdul Hafeez

University of Veterinary & Animal Sciences, Pakistan

Sporozoites of *E. tenella* (local isolate) were adapted on the chorioallantoic membrane (CAM) of chicken embryos. Gametocytes were harvested from CAM and chorioallantoic fluid. Egg adapted gametocytes (*E. tenella*) were used to prepare adjuvanted (Amphigen) vaccine and compared with the non-adjuvanted by immunizing chicks through oral and subcutaneous route in comparison with controls. Egg adapted gametocytes (EAG) of *E. tenella* and wall fragments from sporulated and un-sporulated oocysts were subjected to SDS-PAGE to fractionate the proteins. Five random samples taken from different aliquots of EAG were analyzed. All the samples of gametocyte showed similar protein bands having molecular weights of 48.43, 27.20, 25.75, 22.57 and 12.92 kDa. Sporozoites-specific ELISA with purified sporozoites of *E. tenella* revealed that antibodies produced due to EAG vaccine are sporozoite specific. Humoral response in vaccinated and control chicks was detected by IHA test and ELISA. Results of all groups with IHA geometric titer and ELISA OD values were partially comparable. A significant difference ($P > 0.01$) in geometric titer and OD values among vaccinated and control groups at day 5th and 14th post vaccination was recorded. Cell mediated immunity (CMI) of the vaccinated and control groups were detected by Modified splenic cell migration inhibition assay. There was significant difference ($P > 0.01$) in migration index of vaccinated groups with control group either with or without antigen and non-significant difference ($P > 0.01$) was observed in vaccinated groups with or without adjuvanted vaccine. On 10th days post challenge, organ body weight ratio of Lymphoid was calculated. The ratio of the vaccinated chicks remains normal while increased in non-vaccinated chicks (control groups). Sporulated oocysts of mixed species of genus *Eimeria* were used to challenge the vaccinated and control chicks. Both vaccines check the mortality but maximum protection (71.42 %) against heavy doses of infection was recorded by adjuvanted vaccine given orally. Maximum reduction (86%) in oocyst count was also observed in group A given adjuvanted vaccine orally.