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### Immunomodulatory Activity of *Pinus radiata* Extract against Coccidiosis in Broiler Chicken

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#### Abstract

Immunomodulatory activity of *Pinus radiata* extract (PRE) against experimental *Eimeria* infection in broiler chicks was evaluated. For *in-vivo* trials, 175 day-old broiler chicks were divided into five equal groups (A, B, C, D and E) containing 35 chicks in each group. At one week of age, the groups A, B and C were given orally with graded doses of PRE (100, 200 and 300 mg/kg of body weight, respectively) for three consecutive days. Group D served as positive control (Vitamin-E treated) and Group E served as negative control (PBS treated). At 14<sup>th</sup> day of age, all groups were infected orally with 60,000 sporulated oocysts of mixed *Eimeria* species. Cell mediated immune response was evaluated by Phytohemagglutinin-P, Concanavalin-A, Carbon clearance assay and Dinitrochlorobenzene tests. Humoral immune response was evaluated by microplate hemagglutination test using sheep red blood cells. Results of study demonstrated that a dose dependent immune response was observed in PRE treated groups. Cell mediated and humoral immune response of group treated with PRE @ 300 mg/kg of body weight was comparable to positive control group (Vitamin-E treated) ( $P>0.05$ ). *Pinus radiata* extract treated groups showed significantly higher cell mediated and humoral response as compared to negative control (PBS) ( $P<0.05$ ).

**Key words:** Coccidiosis, *Eimeria*, Immunity, *Pinus radiata* extract



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