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Protective Effects of Dietary Safflower (*Carthamus tinctorius*) on Experimental Coccidiosis

Sung-Hyen Lee[1)2)], Hyun S. Lillehoj[1)], Soo-Muk Cho[2)], Dong-Woon Park[1)], Yeong-Ho Hong[1)], Erik P. Lillehoj[3)], Robert A. Heckert[1)], Hong-Ju Park[2)] and Hye-Kyung Chun[2)]

1) Animal Parasitic Diseases Laboratory, Animal and Natural Resources Institute, Agricultural Research Service, USA
2) Department of Korean Food Research for Globalization, National Academy of Agricultural Science, Rural Development Administration, South Korea
3) Department of Pediatrics, School of Medicine, University of Maryland, USA

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This study was conducted to evaluate the effects of dietary safflower leaf on protective immunity against coccidiosis, the most economically important parasitic disease of poultry. White Leghorn chickens were fed a standard diet with or without safflower leaf and were either uninfected or orally infected with 5,000 sporulated oocysts of *Eimeria acervulina*. Protective immunity was assessed by body weight gain, fecal oocyst shedding, splenic lymphocytes proliferation, T lymphocyte subpopulations, and proinflammatory cytokine gene expression. We observed that the effect of safflower on experimental coccidiosis was dependant on the dose of the supplement used. A 0.1% (wt/wt) safflower-supplemented diet increased body weight gains of coccidia-infected chickens to a level identical to that of uninfected controls, and significantly reduced fecal oocyst shedding compared with animals that were given a non-supplemented standard diet. Furthermore, increased splenic lymphocyte proliferation as well as greater percentages of $CD4^+$ T cells and decreased $CD8^+$ cells were observed in animals fed a 0.1% safflower-supplemented diet. Finally, IFN-γ, IL-8, IL-15 and IL-17 transcripts in the 0.1% safflower-supplemented group were higher than the non-supplemented controls. These results indicate that safflower leaf when

given as a dietary supplement possesses immune-enhancing properties that augment protective immunity against experimental coccidiosis.

Keywords: coccidiosis, cytokines, immunity, safflower

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