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Effect of Hydrated Sodium Calcium Aluminosilicate on the Prevention of the Toxic Effects of Lambda Cyhalothrin in Quails

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Abstract:
Pesticide use in agriculture has been extremely increased and poses threats to humans, wild and domestic birds. Lambda-cyhalothrin has been widely used as a broad-spectrum insecticide. Hydrated Calcium Aluminosilicate (HSCAS) alters the functional and structural abilities of toxins and has the binding capability to eradicate toxicity. The main objective of the present study was to evaluate the cytopathic effects of Lambda-cyhalothrin and to monitor the counteracting effects by using HSCAS (Hydrated Sodium Calcium Aluminosilicate) in quails. A total of 60 Quails birds were taken for trial and divided into four treatments with three replicates of 5 birds each using randomized design completely. Birds were reared from day 1 to 35. Group-1 quails were taken as negative Control, Group-2 was injected Mitomycin-C @ 2mg per kg body weight intraperitoneally on day 21, were taken as control positive. In Group-3 quails were injected through Lambda-cyhalothrin intraperitoneally with the dose rate of 2mg per Kg body weight. The toxin binder, HSCAS@ 100g/bag of feed was offered in the feed of group-4 that was also be injected Lambda-cyhalothrin. The parameters evaluated were feed intake; weight gain; feed conversion; relative weights of the liver, heart, giblet, and gizzard; serum levels of aspartate aminotransferase (AST), and Alanine aminotransferase (ALT); and hematological assessment (White blood cells and Red blood cells). The statistical data was examined by the SPSS procedure of General Linear Model, 18.0. Outcomes revealed that there were no specific differences seen in growth performance (feed intake, gain in body weight, FCR), Giblet weight, liver enzymes, hematological parameters of quails receiving LCT alone and in combination with HSCAS as compare to positive or negative control group. These results reflect that Lambda-cyhalothrin in the diet impaired the productivity indexes and that HSCAS did not improve these parameters.

Keywords: Lambda-cyhalothrin, toxicity, quails, performance, giblet weight, hematology, serology.