Thesis Title : Study on the Efficacy of Various Types of Hydrated Sodium Calcium Aluminosilicate to Ameliorate the Toxic Effects of Aflatoxin in Weanling Pigs and Meat Ducks

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Abstract

The Objective of this study were determine the efficacy of various types of Hydrated Sodium Calcium Aluminosilicate (HSCAS) to ameliorate the toxic effect of Aflatoxins by rapid screening minicolumn analysis and feeding trials in animals (weaning pigs and meat ducks). Experiment 1. Rapid screening minicolumn method showed very appropriate for analysis of raw material for quality control (Q.C.) and in the pigs and duck diets for quality assurance (Q.A.),since this method is easy, fast, low cost with minimum of facilities and low knowledge personnel training. Adding 4 types of HSCAS (Mycosorb, Sitto F-1, Astra Ben 20 A and Novasil) in both weaning pigs diets and meat duck diets (starter 0-4 and finisher 4-8 weeks) showed lower result in aflatoxin levels in both type of animal diets when compared with the control positive diets which did not added these 4 types of HSCAS. The results of these results indicated that 4 types of these HSCAS have affinity to bind aflatoxin during extraction and elution by this method which showing the result of aflatoxin analysis very vary from each determination within same sample indication that 4 types of HSCAS having

sorbent ability with strong and loosely. Therefore, rapid screening minicolumn method was not appropriate for testing analysis in vitro or chemical test for checking the ability of HSCAS for toxin binder and also for testing aflatoxin in feedstuffs and animal diets when HSCAS was added in the feeds.

Experiment 2. Added 4 types of HSCAS 0.5 % in the weaning pigs diets showed improvement index in body weight gain, feed efficiency and productive index in piglets fed with each 4 types of HSCAS when compare with the piglets fed with control diet (no added HSCAS) but showing no effects on mortality and blood biochemical profile.

Experiment 3. Added 4 types of HSCAS 0.5 % in both starter (0-4 wk) and finisher (4-8 wk) diets showed the same results as experiment 2. The results of these experiment confirmed the results of experiment 2. Adding 4 types of HSCAS in the diets of meat duck showed improvement index in body weight gain, feed efficiency, productive index and decreasing in both fatty liver and liver paleness in ducks fed with each 4 types of HSCAS when comparing with ducks fed with positive control (with 100 ppb aflatoxin but no added HSCAS) but showing no effects on blood biochemical profile and mortality when comparing with ducks fed negative control (with 10-30 ppb aflatoxin but no added HSCAS).

The results from both feeding experiments showing that 4 types of HSCAS using in these studies had a good ability for toxin binders in weaning pigs and meat ducks diet when added in the diets at the level 0.5 %.