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### Safety evaluation of mycotoxin adsorbent montmorillonite on weanling pigs

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The aim of this study was to investigate the safety of dietary montmorillonite (MMT) supplementation in weanling piglets. A total of one hundred and twenty 35-day-old crossbred pigs (Duroc × Large White × Landrace), 60 barrows and gilts respectively, with an average initial BW of 10.50 ± 1.20 kg were used in a 28-d experiment. Pigs were blocked by weight, sex and ancestry and randomly allotted to five dietary treatments, each of which was replicated six times with 4 pigs (2 barrows and 2 gilts) per replicate. The five dietary treatments included one control group (basal diet) and four MMT groups, which were incorporated 0.5, 1.0, 2.5 and 5.0% MMT to the basal diet at the expense of bran, respectively. The results implicated that: 1) No significant variance ( $P > 0.05$ ) of growth performance was observed when diets supplemented with low levels (0.5% and 1%) of MMT compared to the control group. However, high levels (2.5% and 5%) of MMT supplementation to the diets could significantly reduce ( $P < 0.05$ ) the feed intake. Besides, it even presented a negative effect on body weight gain at the starter period of post-weanling. 2)

A variance from 0 to 5.0% MMT supplementation to the diets presented no influence ( $P > 0.05$ ) to serum elements concentration, organ weight index, skeletal characteristics and tissue structure. 3) Compared to control group, plasma nitric oxide levels of pigs were significantly increased ( $P < 0.01$ ) with dietary MMT supplementation from 0.5% to 1.0%. However, it decreased when MMT supplementation level reach at 5.0%. At day 28 of the experiment, plasma malondialdehyde level was linearly decreased ( $P < 0.01$ ) with the increase of dietary MMT supplementation. At the same time, bone mineral elements (K, Na, Zn, Cu, Fe, Mg and Mn) content of pigs in different treatments were significantly decreased ( $P < 0.01$ ). In conclusion, dietary MMT supplementation with a level of no more than 1.0% presented no influence on growth performance of pigs, while it reduced when reached to a level of 2.5%. In addition, platelet count, albumin, urea nitrogen, creatinine and nitric oxide level were also influenced. Besides, dietary MMT supplementation could induce the adsorption of mineral elements, which reduced the deposition of elements in animals.

**Keywords** montmorillonite;weaned piglet;safety