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黄曲霉毒素解毒酶制剂对饲喂黄曲霉毒素 B_1 饲料的断奶仔猪生长性能及肝脏生化指标的影响

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Effects of Aflatoxin-Detoxifzyme on Growth Performance and Hepatic Biochemical Indexes of Weaner Piglets Fed Diets Containing Aflatoxin B_1

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摘要 本试验旨在通过研究黄曲霉毒素解毒酶制剂(aflatoxin-detoxifzyme,ADTZ)对饲喂黄曲霉毒素 B_1 (AFB_1)饲料的断奶仔猪生长性能及肝脏生化指标的影响,探讨其应用效果。选用日龄相差不超过3 d、品种相同的断奶仔猪108头,按照遗传背景相同、体重相近、性别比例一致的原则随机分为3个组,分别为对照组(基础饲料)、 AFB_1 组(基础饲料+0.1 mg/kg AFB_1)、ADTZ组(基础饲料+0.1 mg/kg AFB_1 +0.2% ADTZ),每组6个重复,每个重复6头仔猪。试验期30 d。结果表明:1)与对照组相比, AFB_1 组仔猪平均日增重、平均日采食量有下降趋势($P>0.05$),料重比有上升趋势($P>0.05$);肝脏中谷胱甘肽还原酶、过氧化氢酶、琥珀酸脱氢酶活性显著下降($P<0.05$),超氧化物歧化酶、谷胱甘肽过氧化物酶与胆碱酯酶活性下降,但差异不显著($P>0.05$),碱性磷酸酶活性和丙二醛含量有上升趋势($P>0.05$);2)与对照组相比,当添加0.2%的ADTZ后,仔猪平均日增重、平均日采食量均有所改善,同时有降低料重比的趋势($P>0.05$);以上相关生化指标均恢复到正常水平。因此,在基础饲料中添加 AFB_1 可导致断奶仔猪生长性能下降,肝脏生理功能受损;添加ADTZ可有效消除 AFB_1 对断奶仔猪的危害,改善其生长性能,保护肝脏生理功能。

关键词: 断奶仔猪 黄曲霉毒素解毒酶制剂 黄曲霉毒素 B_1 生长性能 生化指标

Abstract: This experiment was conducted to evaluate the effects of aflatoxin-detoxifzyme (ADTZ) on the growth performance and hepatic biochemical indexes of weaner piglets fed diets containing aflatoxin B_1 (AFB_1), and investigated the application effect. A total of 108 piglets, whose age difference was not more than three days, and with the same genetic background, body weight, and consistent sex ratio, were randomly divided into 3 groups: control group (basal diet), AFB_1 group (basal diet+0.1 mg/kg AFB_1) and ADTZ group (basal diet+0.1 mg/kg AFB_1 +0.2% ADTZ), and with 6 replicates per group. The experiment lasted for 30 days. The results showed as follows: 1) compared with control group, in AFB_1 group, average daily gain (ADG) and average daily feed intake (ADFI) were decreased ($P>0.05$), and feed/gain was increased ($P>0.05$); the activities of glutathione reductase, catalase and succinic dehydrogenase were significantly decreased ($P<0.05$), and the activities of superoxide dismutase, glutathione peroxidase and choline esterase were decreased ($P>0.05$), while alkaline phosphatase activity and MDA content were increased ($P>0.05$); 2) compared with control group, in ADTZ group, ADG and ADFI were increased ($P>0.05$), and feed/gain was increased ($P>0.05$); biochemical indexes were returned to normal levels. Adding AFB_1 to the basal diet can lead to a decline in growth performance and hepatic physiological functions; adding ADTZ can effectively reduce the harm of AFB_1 on weaner piglets, improve growth performance and protect the hepatic physiological functions.

Keywords: weaner piglets, aflatoxin-detoxifzyme, aflatoxin B_1 , growth performance, biochemical indexes

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