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发酵饲料对朗德鹅生长性能、产肝性能、肠道黏膜结构及组织器官ATP酶活性的影响

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Effects of Fermented Feed on Growth Performance, Fatty Liver Performance, Intestinal Mucosa Structure and Organ Tissue ATPase Activity of Landaise Geese

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摘要 本试验旨在研究发酵饲料对朗德鹅生长性能、产肝性能、肠道黏膜结构及组织器官ATP酶活性的影响。试验选取240只70日龄体重相近的健康朗德鹅,随机分为3个组,每组10个重复,每个重复8只鹅。对照组饲喂玉米-豆粕型基础饲料,只添加35%的水现喂现拌;试验组在基础饲料的基础上添加1%的发酵剂,加入35%的水进行密封发酵,其中试验1组发酵24 h,试验2组发酵48 h。正式饲养2周后每个重复挑选1只进行屠宰,剩余的鹅只进行填饲试验。结果表明:1)试验1组平均日采食量显著高于对照组($P<0.05$)。2)试验1、2组十二指肠绒毛高度和绒毛高度/隐窝深度(V/C)显著高于对照组($P<0.05$);试验2组盲肠绒毛高度和隐窝深度显著低于对照组($P<0.05$),试验1组盲肠V/C显著低于对照组($P<0.05$)。3)试验1、2组心脏 Mg^{2+} -ATP酶活性显著高于对照组($P<0.05$);试验1、2组肝脏 Na^+, K^+ -ATP酶活性显著低于对照组($P<0.05$), Mg^{2+} -ATP酶活性显著高于对照组($P<0.05$)。4)试验2组育肥试验期的肝脏重和肝屠比显著高于对照组($P<0.05$);试验2组填饲试验期的肝屠比显著高于对照组($P<0.05$)。由此可见,发酵饲料能改善朗德鹅生长性能和十二指肠绒毛的生长发育,提高心脏 Na^+, K^+ -ATP酶、 Mg^{2+} -ATP酶活性,提高朗德鹅填饲期的肥肝重和肝屠比。

关键词: 朗德鹅 发酵饲料 肠道黏膜结构 肥肝 ATP酶

Abstract: This experiment was conducted to study the effects of fermented feed on growth performance, fatty liver performance, intestinal mucosa structure and organ tissue ATPase activity of Landaise geese. A total of 240 seventy-day-old healthy Landaise geese (male) were randomly assigned to 3 groups with 10 replicates per group and 8 geese per replicate. The control group was fed a corn-soybean based diet added 35% water and the experimental groups were fed the basal diets supplemented 1% fermentation agent and 35% water to seal fermentation (trial group 1 was fermented for 24 hours and trial group 2 was fermented for 48 hours). One goose of each replicate was selected to slaughter after two weeks, and the other geese were force-feed to produce fatty liver. The results showed as follows: 1) the average daily feed intake in trial group 1 was significantly higher than that in control group ($P<0.05$). 2) The villus height and villus height/crypt depth (V/C) of duodenum in trial groups 1 and 2 were significantly higher than those in control group ($P<0.05$); the villus height and crypt depth of cecum in trial group 2 were significantly lower those that in control group ($P<0.05$), and the V/C of cecum in trial groups 1 was significantly lower than that in control group ($P<0.05$). 3) The heart Mg^{2+} -ATPase activity in trial groups 1 and 2 was significantly higher than that in control group ($P<0.05$); the liver Na^+, K^+ -ATPase activity in trial groups 1 and 2 was significantly higher than that in control group ($P<0.05$), and the liver Mg^{2+} -ATP activity was significantly higher than that in control group ($P<0.05$). 4) The liver weight and live/carcass in trial group 2 were significantly higher than those in control group in fattening trial period ($P<0.05$); the live/carcass in trial group 2 was significantly higher than that in control group in force-feeding trial period ($P<0.05$). In conclusion, the fermented feed can improve the growth performance and the growth and development of villus in duodenum of Landaise geese, also improve the activities of Na^+, K^+ -ATPase and Mg^{2+} -ATPase in heart, fatty liver weight and liver/carcass in the force-feeding trial period of Landaise geese.

Keywords: Landaise geese, fermented feed, intestinal mucosa structure, fatty liver, ATPase

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