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饲粮豆油添加水平对断奶至3月龄獭兔生长性能、营养物质消化代谢、血清生化指标及皮毛质量的影响

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Effects of Soybean Oil Supplemental Level on Growth Performance, Nutrient Digestio and Metabolism, Serum Biochemical Indices and Fur Quality of Weaner to 3-Month-O Rex Rabbits

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摘要 本试验旨在研究饲粮豆油添加水平对断奶至3月龄獭兔生长性能、营养物质消化代谢、血清生化指标及皮毛质量的影响。选用体重相近的200只断奶獭兔,随机分成5组,每组40个重复,每个重复1只。对照组獭兔饲喂基础饲粮,其余4组獭兔分别饲喂以1%、2%、3%、4%的豆油代替基础饲粮中相同比例玉米的试验饲粮。预试期7 d,正试期53 d。结果表明:在初始体重无显著差异(*P*>0.05)的情况下,饲粮添加豆油可极显著地降低獭兔的平均日采食量(*P*<0.01),但对平均日增重无显著影响(*P*>0.05)。饲粮豆油添加水平为3%时料重比最低,极显著低于对照组(*P*<0.01),与其他添加组相比差异不显著(*P*>0.05)。饲粮添加豆油可极显著地降低獭兔的食入总能、食入氮和粪氮(*P*<0.01),但对粪能、尿能、尿氮、可消化氮、沉积氮和氮利用率无显著影响(*P*>0.05)。能量代谢率和能量消化率,各添加组均高于对照组,但组间差异不显著(*P*>0.05)。随着饲粮豆油添加水平的增加,氮表观消化率先增加后降低,在添加水平为2%时达到最高,并显著高于对照组(*P*<0.05),与其他添加组差异不显著(*P*>0.05)。饲粮豆油添加水平对血清低密度脂蛋白胆固醇含量有极显著影响(*P*<0.01),对血清甘油三酯、总胆固醇、高密度脂蛋白胆固醇含量无显著影响(*P*>0.05)。与对照组相比,各添加组血清低密度脂蛋白胆固醇含量均极显著降低(*P*<0.01),但各添加组之间差异不显著(*P*>0.05)。饲粮豆油添加水平对皮张面积、皮张重量无显著影响(*P*>0.05),但极显著影响成纤维细胞生长因子5(*FGF*5)mRNA的表达量(*P*<0.01),且在添加水平为2%时*FGF*5 mRNA的表达量最高。综上所述,断奶至3月龄獭兔饲粮中豆油的适宜添加水平为2%～3%。

关键词： 獭兔 豆油 生长性能 营养物质消化代谢 血清生化指标 皮毛质量

Abstract: This experiment was conducted to study the effects of soybean oil supplemental level on growth performance, digestion and metabolism of nutrients, serum biochemical indices and fur quality of weaner to 3-month-old Rex rabbits. Two hundred weaner Rex rabbits with similar body weight were randomly divided into 5 groups with 40 replicates per group and 1 rabbit per replicate. Rabbits in control group were fed a basal diet, and rabbits in other 4 groups were fed experimental diets which were formulated with 1%, 2%, 3% and 4% corn replacement by soybean oil with the same proportion on basal diet. The duration of the preliminary experiment was 7 days and the duration of the formal experiment was 53 days. The results showed as follows: soybean oil supplementation significantly reduced the average daily feed intake (*P*<0.01), but had no significant effect on average daily gain (*P*>0.05) under the condition of no significant difference in the initial body weight (*P*>0.05). The feed/gain in 3% group was the lowest and significantly lower than that in control group (*P*<0.01), but had no significant difference compared with other supplemental groups (*P*>0.05). Soybean oil supplementation significantly reduced the gross energy intake, nitrogen intake and fecal nitrogen (*P*<0.05 or *P*<0.01), but had no significant effects on fecal energy, urine energy, digestible nitrogen, nitrogen retention and nitrogen utilization rate (*P*>0.05). The energy digestibility and metabolizability in all supplemental groups were higher than those in control group, but no significant differences were found (*P*>0.05). The nitrogen apparent digestibility was firstly increased and then decreased with the increase of soybean oil supplemental level, and reached the maximum when supplemental level was 2%. The nitrogen apparent digestibility in 2% group was significantly higher than that in control group (*P*<0.05), but had no significant difference compared with other supplemental groups (*P*>0.05). Soybean oil supplemental level significantly affected serum low density lipoprotein cholesterol content (*P*<0.01), but did not

affect serum triglyceride, total cholesterol and high density lipoprotein cholesterol contents (P>0.05). Compared with the control group, the serum low density lipoprotein cholesterol content in all supplemental groups was significantly increased (P<0.01), but there were no significant differences among all supplemental groups (P>0.05). Soybean oil supplemental level did not affect fur area and weight (P>0.05), but the fibroblast growth factor 5 (*FGF*5) mRNA expression was significantly changed (P<0.01) and reached the maximum when supplemental level was 2%. Based on above results, the appropriate soybean oil supplemental level is 2% to 3% for weaner to 3-month-old Rex rabbits.

Keywords: Rex rabbit, soybean oil, growth performance, nutrient digestion and metabolism, serum biochemical indices, fur quality

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