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## 抗菌肽对蛋用仔公鸡生长性能、免疫指标及空肠组织相关细胞因子基因mRNA表达的影响

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## Antimicrobial Peptides: Effects on Growth Performance, Immune Indices and mRNA Expression of Related Cytokine Genes in Jejunum of Young Roosters for Egg Production

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**摘要** 本试验旨在研究饲料中添加不同水平天蚕素抗菌肽对海兰褐蛋用仔公鸡生长性能、免疫器官指数及空肠组织相关炎症细胞因子基因mRNA相对表达水平的影响。选用336只1日龄健康海兰褐蛋用仔公鸡,随机分为7组,每组4个重复,每个重复12只鸡。7组试鸡分别饲喂基础饲料(对照组),基础饲料+150 mg/kg金霉素(抗生素组),基础饲料+150、200、250、300、350 mg/kg抗菌肽(抗菌肽I、II、III、IV、V组),试验期为42 d。结果表明:1)抗菌肽III、IV、V组平均日采食量显著低于对照组( $P<0.05$ ),平均日增重各组之间差异不显著( $P>0.05$ ),抗菌肽IV、V组料重比较对照组显著降低( $P<0.05$ )。2)抗菌肽V组胸腺指数显著高于其他各组( $P<0.05$ ),法氏囊指数较对照组、抗菌肽I组显著提高( $P<0.05$ ),抗菌肽IV、V组之间脾脏指数差异不显著( $P>0.05$ ),与其他各试验组相比,抗菌肽V组脾脏指数显著升高( $P<0.05$ )。3)抗菌肽V组白细胞介素-6基因mRNA相对表达水平较其他各组显著降低( $P<0.05$ ),抗菌肽III、IV、V组干扰素- $\gamma$ 基因mRNA相对表达水平较对照组显著降低( $P<0.05$ ),抗菌肽IV、V组肿瘤坏死因子- $\alpha$ 基因mRNA相对表达水平较对照组显著降低( $P<0.05$ )。综上所述,饲料抗菌肽可不同程度提高蛋用仔公鸡生长性能、免疫器官指数,并能有效降低炎症细胞因子基因的mRNA相对表达水平,以添加350 mg/kg抗菌肽效果为最好。

**关键词:** 抗菌肽 蛋用仔公鸡 生长性能 免疫器官指数 细胞因子 mRNA相对表达水平

**Abstract:** This experiment was conducted to investigate the effects of antibacterial peptides (cecropin, ABPs) on growth performance, immune organ indices and mRNA expression levels of proinflammatory cytokine genes in jejunum of Hy-Line Brown young roosters for egg production. Three hundred and thirty-six 1-day-old healthy Hy-Line Brown young roosters for egg production were selected, and randomly divided into seven groups with four replicates in each group and twelve chicks in each replicate. The young roosters in seven groups were fed a basal diet (control group), basal diet+150 mg/kg aureomycin (antibiotics group), and basal diet+150 (ABPs group I), 200 (ABPs group II), 250 (ABPs group III), 300 (ABPs group IV), 350 mg/kg ABPs (ABPs group V), respectively. The feeding experiment lasted for 42 days. The results showed as follows: 1) the average daily feed intake in ABPs groups III, IV and V were significantly lower than that in the control group ( $P<0.05$ ), and the F/G in ABPs groups IV and V was significantly lower than that in the control group ( $P<0.05$ ), but there was no significant difference in average daily gain among all groups ( $P>0.05$ ). 2) The thymus index in ABPs group V was significantly higher than that in the other groups ( $P<0.05$ ), and the bursa of Fabricius index was significantly higher than that in the control group and ABPs group I ( $P<0.05$ ); there was no significant difference in the spleen index between ABPs group IV and ABPs group V ( $P>0.05$ ), but ABPs group V was significantly higher than the other groups ( $P<0.05$ ). 3) The relative expression level of *IL-6* gene in ABPs group V was significantly decreased compared with that in the other groups ( $P<0.05$ ), that of *IFN- $\gamma$*  gene in ABPs groups III, IV and V was significantly lower than that in the control group ( $P<0.05$ ), and that of *TNF- $\alpha$*  gene in ABPs groups IV and V was significantly lower than that in the control group ( $P<0.05$ ). To sum up, ABPs added in the basal diet can improve growth performance and immune function, and decrease mRNA relative expression level of cytokine genes in jejunum of young roosters for egg production to some extent. The optimal added amount is 350 mg/kg.

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Keywords: antimicrobial peptides, young roosters for egg production, growth performance, immune organ indices, cytokines, mRNA relative expression level

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