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## 大豆异黄酮对香猪睾丸形态及精子发生标志基因表达的影响

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## Soybean Isoflavones Affect Testis Morphology and Expression of Marker Genes during Spermatogenesis of Xiang Pigs

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**摘要** 为研究大豆异黄酮(soybean isoflavones,SI)对香猪睾丸形态及精子发生标志基因表达的影响,选择40头健康的28日龄雄性香猪,随机分成4组,每组10个重复,每个重复1头猪。1、2、3和4组分别在基础饲料中添加0、125、250和500mg/kg SI,饲喂60d后从各组分别随机选取5头屠宰,采取睾丸样品,分析睾丸的组织形态及E型钙粘连蛋白1(*Cdh1*)、联合复合体蛋白3(*SCP3*)、过渡蛋白1(*Tnp1*)和波形蛋白(*Vim*)基因的表达。结果表明:各添加水平的SI均造成了睾丸曲细精管中空泡的形成,减少了管腔中成熟精子的数量;饲料添加SI极显著降低了睾丸组织*Cdh1*、*SCP3*和*Tnp1*基因的表达量( $P<0.01$ );添加250mg/kg的SI显著降低了睾丸组织*Vim*基因的表达量( $P<0.05$ )。由此可知,饲料添加125、250、500mg/kg的SI对香猪睾丸形态有明显损伤,抑制了精子发生标志基因的表达;250mg/kg SI显著抑制猪睾丸支持细胞标志基因表达。

**关键词:** 大豆异黄酮 香猪 睾丸组织形态 精子发生 基因表达

**Abstract:** To investigate the effects of soybean isoflavones (SI) on testis morphology and expression of marker genes during spermatogenesis of Xiang pigs, 40 healthy male pigs aged 28 days were selected and divided randomly into 4 groups with 10 replicates in each group and 1 pig per replicate. Pigs in groups 1, 2, 3 and 4 were fed a basal diet supplemented with 0, 125, 250 and 500 mg/kg SI, respectively. Five pigs in each group were slaughtered after 60 d of feeding, and the tissue of testis was sampled for the analysis of tissue morphology and gene expression of *Cdh1*, *SCP3*, *Tnp1* and *Vim*. The results showed as follows: supplementation of SI (all doses in the study) induced vacuolization in seminiferous tubules, and decreased the number of mature sperm in tubules; the supplementation significantly decreased the expression levels of *Cdh1*, *SCP3* and *Tnp1* genes ( $P<0.01$ ); the expression level of *Vim* gene was significantly decreased by 250 mg/kg SI ( $P<0.05$ ). In conclusion, dietary SI at doses of 125 to 500 mg/kg has obvious injury on testis morphology of Xiang pigs, and inhibits expressions of marker genes during spermatogenesis. Dietary SI at a dose of 250 mg/kg inhibits expression of the marker gene of sustentacular cell of testis.

**Keywords:** soybean isoflavones, Xiang pigs, testis morphology, spermatogenesis, gene expression

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