



吡咯喹啉醌对蛋鸡生产性能、蛋品质及抗氧化功能的影响

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Effect of Dietary PQQ on Performance, Egg Quality and Antioxidant Function of Laying Hens

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摘要 本试验旨在研究饲料中添加不同水平的吡咯喹啉醌(PQQ)对蛋鸡生产性能、蛋品质及抗氧化功能的影响。试验选用378只50周龄健康海兰灰蛋鸡,随机分为7组,每组6个重复,每个重复9只鸡,分别在基础饲料中添加不同水平[0、0.005、0.010、0.020、0.040、0.080、0.160 mg/(d·只)]的PQQ。试验期6周。结果表明,饲料PQQ有提高蛋鸡产蛋率、蛋品质、鸡蛋蛋白高度和哈氏单位的趋势,但差异不显著(P>0.05);PQQ添加组血浆和肝脏谷胱甘肽过氧化物酶(GSH-Px)、总超氧化物歧化酶(T-SOD)活性显著提高(P<0.05);PQQ抑制超氧阴离子自由基(O²·)和羟自由基(·OH)能力显著增强(P<0.05);PQQ可显著降低血浆和肝脏中丙二醛(MDA)含量(P<0.05)。由此可见,饲料中添加PQQ有提高蛋鸡产蛋率和蛋品质的趋势;改善蛋鸡的抗氧化能力,其中以0.010 mg/(d·只)的添加量效果最佳。

关键词: PQQ 生产性能 蛋品质 抗氧化功能

Abstract: The experiment was conducted to study the effects of dietary PQQ on performance, egg quality and antioxidant function of laying hens. Three hundred and seventy-eight healthy Hy-line laying hens of 50 week-old were randomly divided into 7 groups with 6 replicates per group and 9 hens per replicate. All the hens were fed basal diets supplemented with 0, 0.005, 0.010, 0.020, 0.040, 0.080, and 0.160 mg/(d·hen) PQQ, respectively. The experiment lasted for 6 weeks. The result showed that laying rate and egg quality of laying hens had a tendency to increase in the PQQ supplemental groups, and dietary PQQ increased albumen height and Haugh unit, but there was no significant difference among the 7 groups (P>0.05); the activities of GSH-Px and T-SOD in serum and livers of laying hens was significantly increased (P<0.05); the abilities of inhibiting superoxide anion and the hydroxyl radical were significantly increased (P<0.05); the content of MDA in serum and livers was significantly decreased compared with that in the control group (P<0.05). In conclusion, the supplementation of PQQ in the diet has the trend to increase the laying rate and egg quality in laying hens, and it can enhance the antioxidant function. The best level of PQQ is 0.010 mg/(d·hen). [Chinese Journal of Animal Nutrition, 2011, 23 (8) : 1370 - 1377]

Keywords: PQQ, performance, egg quality, antioxidant function

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