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不同形式蛋氨酸对肉种鸡生产性能、免疫指标及抗氧化功能的影响

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Effects of Different Methionine Sources on Performance, Immune Indices and Antioxidant Function of Broiler Breeders

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- 摘要
- 参考文献
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摘要 本试验旨在研究不同形式蛋氨酸对肉种鸡生产性能、免疫指标及抗氧化功能的影响。试验选取39周龄岭南黄肉用种母鸡360只,随机分为4组,每组3个重复,每重复30只。对照组为蛋氨酸缺乏组,饲喂基础饲料,试验组分别饲喂添加了蛋氨酸有效含量为0.10%的DL-蛋氨酸(DLM)、羟基蛋氨酸钙(MHA-Ca)和包膜蛋氨酸(CME)的试验饲料。结果表明:1)添加3种形式蛋氨酸均有提高肉种鸡产蛋率、平均蛋重并降低料蛋比的趋势,其中CME组产蛋率和周均总蛋重显著高于对照组($P<0.05$),料蛋比显著低于对照组($P<0.05$)。2)CME组较对照组显著提高了肉种鸡血清免疫球蛋白G、免疫球蛋白A、免疫球蛋白M、补体3、补体4含量($P<0.05$),较DLM和MHA-Ca组显著提高了血清免疫球蛋白G和补体4含量($P<0.05$)。3)与对照组相比,不同形式蛋氨酸均能增强肉种鸡机体的抗氧化功能,显著提高了肝脏、肾脏组织谷胱甘肽过氧化物酶和超氧化物歧化酶活性($P<0.05$),显著降低了丙二醛含量($P<0.05$),其中以CME组效果最佳。由此可见,在本试验条件下,3种形式蛋氨酸中以CME对肉种鸡生产性能、免疫指标及抗氧化功能效果最佳。

关键词: 肉种鸡 蛋氨酸 生产性能 免疫 抗氧化

Abstract: This study was conducted to evaluate the effects of different methionine sources on performance, immune indices and antioxidant function of broiler breeders. A total of three hundred and sixty *Lingnan* yellow-feathered broiler breeders at age of 39 weeks were randomly allocated into 4 groups with 3 replicates per group and 30 hens per replicate. The control group was fed a basal diet without extra supplementation of methionine and the 3 experimental groups were fed the basal diet supplemented with 0.10% *DL*-methionine (DLM), methionine hydroxy analogue calcium (MHA-Ca) and coated methionine (CME), respectively. The results showed as follows: 1) the supplementation of DLM, MHA-Ca or CME could increase the laying rate, egg weight and decrease the feed-egg ratio. The laying rate and average total egg weight in CME group were significantly higher than those in control group ($P<0.05$), and the feed-egg ratio was significantly lower than that in control group ($P<0.05$). 2) Compared with the control group, the contents of immunoglobulin G, immunoglobulin A, immunoglobulin M, complement 3 and complement 4 in serum in CME group significantly increased ($P<0.05$). Compared with the MHA-Ca and DLM groups, the contents of immunoglobulin G and complement 4 in serum in CME group significantly increased ($P<0.05$). 3) Different methionine sources could enhance the antioxidant function in experimental groups. The activities of glutathione peroxidase and superoxide dismutase in liver and kidney in experimental groups were significantly higher than those in control group ($P<0.05$), and the content of dicarboxylic aldehyde in liver and kidney was significantly lower than that in control group ($P<0.05$), and CME group was better than other groups. In conclusion, CME has the best effects on performance, immune indices and antioxidant function of broiler breeders in the present study.

Keywords: broiler breeders, methionine, performance, immune, antioxidant

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