The influence of methisoprinol applied in ovo upon hatchability and health status of turkeys


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Abstract

A study was undertaken to determine the effect of a synthetic immunomodulator, i.e. methisoprinol, applied in ovo, upon the hatchability of turkey poults under conditions of a standard hatchery as well as on their health status evaluated based on analyses of selected biochemical indices in their blood serum. Experiments were conducted on 5 groups of BUT 9 turkeys at the age of 5 days (35 birds in each group) hatched from eggs to which methisoprinol (VetAgro, Lublin, Poland) was applied in ovo at a dose of 5 mg (group I), 10 mg (group II) or 20 mg per egg (group III) on the 26th day of incubation. Turkeys hatched from eggs to which a physiological solution of NaCl was applied on the same day at a dose of 0.1 ml per egg (group IV) as well as those hatched from eggs without in ovo injection (group V) served as controls. Five hundreds eggs were used in each group. Hatchability was evaluated based on the number of hatched poults in respect of the number of eggs with live embryos transferred from the setting compartment to the hatching compartment, that were subjected to in ovo administration of the preparations according to the experimental design. Blood serum of the 5-day-old turkey poults was analyzed for activities of AST, ALP, LDH-L, CK, lysozyme and ceruloplasmine as well as for total protein and albumin contents. Analyses were also conducted for the immune system organ index – percentage contribution of organs of the immune system (spleen, thymus and the bursa of Fabricius) in the body weight of turkeys.

The study demonstrated that methisoprinol administered to turkey embryos in ovo on day 26 of incubation at doses of 5, 10 or 20 mg per embryo did not induce any disturbances in the hatching process or affect its final result. In addition, it was shown not to exert any negative effect on the health status of the reared turkey poults.

Key words: turkeys, immunomodulation, methisoprinol, in ovo application

Introduction

The effectively functioning immune system in birds is indispensable to assure their capability for surviving in the environment which, on the one hand, is characterized by ever increasing risk of exposure to pathogens inducing infectious diseases and, on the other hand, by strict restrictions in the use of chemotherapeutics and increasing resistance to them. Also, advances in productive parameters usually lead to deterioration of innate resistance which constitutes the primary barrier that protects a bird’s body against pathogens (Dohms and Saif 1997, Siegel 2003). This condition is very often intensified by the action of...