

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

***Eimeria* spp. impairs the phosphotransfer network in serum of experimentally infected broiler**

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The production of chicken in Brazil plays a major economic role. However, to reach the final product several difficulties are faced, such as the presence of parasites where the performance of the birds is affected. The objective of this study was to evaluate the performance and activity of enzymes involved in the synthesis and use of adenosine triphosphate (ATP) in broilers infected experimentally by *Eimeria* spp. The study had 30 birds in a growth stage (27 days of age) maintained in coops with three animals each for 15 days. Then the animals were divided into 2 groups with 5 replicates each. Group I was composed of animals infected by *Eimeria* spp (35,000 sporulated oocysts, so called *E. acervulina* = 8,000, *E. praecox* = 8,000, *E. maximus* = 4,000, *E. mitis* = 10,000, *E. tenella* = 5,000), and the group C was used as control group. On days 1, 7 and 15 of experiment the birds were weighed. The production of pyruvate kinase (PK), creatine kinase (CK) and adenylate kinase (AK) enzymes was performed by analyzing serum enzyme levels at serum concentrations. For the analyzes, the Student test was applied, with intervals between the groups at each moment. The number of oocysts on days 7 and 15 was 499.2 and 2188.8 oocysts, respectively; In contrast to the animals in group C that were related to *Eimeria*. The body weight of group I was lower than group C ($P < 0.05$) at day 15 post infection (PI). Activity of the enzyme PK did not present statistical differences between groups ($P > 0.05$). The serum CK activity of the animals in group I was lower on days 7 and 15 PI ($P < 0.05$). The activity of the AK enzyme was higher in the animals of group I when there was group C ($P < 0.05$) on days 7 and 15 PI. On day 15 PI, when a histopathological analysis of intestine was performed, there was a presence of parasite forms in villi of the small intestine and cecum. Based on the results, we concluded that mixed infection of *Eimeria* in broilers impairs the synthesis of ATP and causes damage in energy homeostasis. In addition it is important to emphasize that the increase in AK activity may be considered a compensatory mechanism to reduce CK activity in an attempt to avoid an energy imbalance, since CK is considered central controller of cellular homeostasis.

Keywords: Chicken, difficulties, performance, health, economy.

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