

THE EFFECTS OF VITAMIN E ON IMMUNGLOBULIN-CONTAINING PLASMA CELLS IN GUT-ASSOCIATED LYMPHOID TISSUE (GALT) OF BROILERS UNDER HEAT STRESS

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Abstract. The effects of vitamin E (DL- α -tocopherol acetate) (300 IU/kg) on the immunoglobulin-containing plasma cells (IgA, IgG and IgM) in oesophageal tonsils, pyloric tonsils, jejunum, ileum and caecal tonsils of broilers under heat stress were investigated. In the experiments, sixty-three one day-old Ross 308 breeds male broiler chicks were used. The chicks were divided into three groups [control group (22 ± 2 °C), heat stress group (35 °C, 5h/day) and vitamin E (300 IU/kg) + heat stress (35 °C, 5h/day) group]. Each group consisted of twenty one chicks. Tissue samples were taken from seven animals in each group of four, five and six- week- old chickens and fixed in ice-cold PLP (Periodate-lysine-paraformaldehyde), and then embedded in paraffin. Sections were immunostained by the indirect immunoperoxidase method. The present study demonstrated that vitamin E could increase the number of the immunoglobulins producing cells. Consequently, supplementation of vitamin E in the diet can improve immunocompetence of broilers when in the summer months.

Keywords: heat stress, vitamin E, Ig-containing plasma cells, broiler.