

Effects of high ambient temperature on blood parameters in red jungle fowl, village fowl and broiler chickens

ABSTRACT

Two experiments were conducted to compare heat tolerance of Red Jungle Fowl (RJF), Village Fowl (VF) and Commercial Broilers (CB) at a common age and a common body weight. In exp. 1, RJF, VF and CB of a common age (30 days old) were exposed to $36\pm 1^{\circ}\text{C}$ for 3 h. Creatine kinase activity was significantly higher in CB than those of RJF and VF. Both RJF and VF had significantly lower serum K and Na concentration than their CB counterparts. In exp. 2, RJF, VF and CB of common body weight (930 ± 30 g) were subjected to similar procedures as in exp. 1. Neither genotype nor stage of heat treatment had significant effect on serum levels of cholesterol, Cl, CK and LDH. The CB was significantly more hyperglycemic than RJF following heat treatment. In both experiments, irrespective of stage of heat treatment RJF had lower heterophil/lymphocyte ratio than VF and CB. It can be concluded that intense selection for rapid growth in CB has resulted in tremendous alterations in their ability to withstand high ambient temperature as compared to the RJF and VF. It is also apparent that genetic differences in body size per sec may not determine breed or strain variations in response to heat stress.

Keyword: Heat stress; Jungle fowl; Village fowl; Broiler; Blood parameters; Malaysia