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## INTRODUCTION

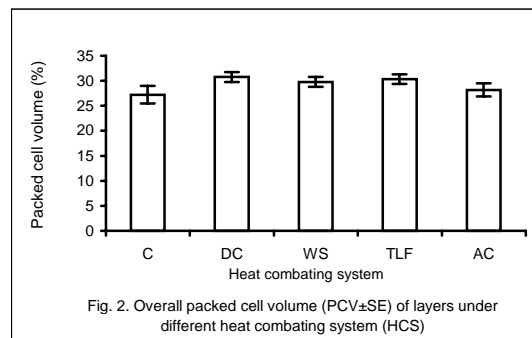
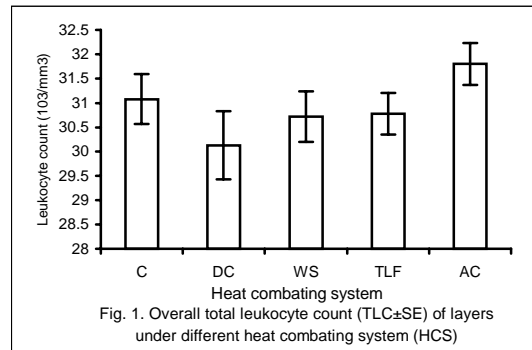
Total leukocytes appeared to be highest at peak stress as compared to pre-stress and post-stress stages reflecting its maximum level during stress (Maxwell *et al.*, 1992). Decline in hematocrit level was observed in layers (Doerr *et al.*, 1975; Zimmerman *et al.*, 1975), turkey (Parker *et al.*, 1982) and in broilers (Yahav *et al.*, 1997) when compared at low and high temperature. Decline in haemoglobin concentration at higher environmental temperature was also presented in chicken (Yahav *et al.*, 1997) and layer (Sahota *et al.*, 1993; Sahota and Gilani, 1995). Higher environmental temperature has been reported to raise the level of glucose in the blood (Yang *et al.*, 1992). Thus, adverse effects of heat make poultry production a difficult and uneconomical pursuit. It is essential to look for some methods that could prove successful in reducing environmental stress and hence improve production in birds.

## MATERIAL AND METHODS

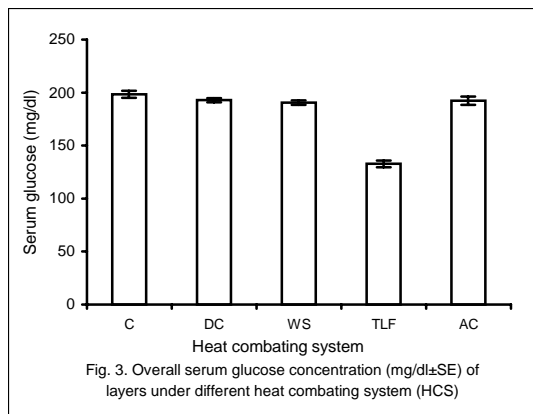
The present study was conducted at the poultry experiment station, University of Agriculture, Faisalabad (Pakistan) on 300 White Leghorn (Euribrid) pullets at the age of 24 weeks. These pullets were wing banded and randomly divided into 15 experimental units comprising 20 pullets each. Three units under each of the following four heat combating systems (HCS) i.e. Water sprinkling (WS), Desert cooling (DC), Time limit feeding (TLF) Ascorbic acid (AA) supplementation and the control were maintained under cage housing. Total Leukocyte Count (TLC) and packed cell volume (PCV) was determined using fresh blood mixed with heparin (Benjamin 1978). Hemoglobin (Hb) was determined by using the Sahli instruments. Glucose and cholesterol was determined using the commercial Randox kits (Roeschlau *et al.*, 1974). Appropriate statistics was applied to see the difference between means (Steel and Torrie, 1980)

## RESULTS AND DISCUSSION

The downtrend of TLC in hens subjected to desert cooling system with maximum egg production developed an inverse relationship, whereas, low egg production gave rise to higher TLC among other groups. PCV remained towards higher side under desert cooling, water sprinkling and time limit feeding schedule. The efficiency of desert cooling and time limit feeding was best in keeping the haemoglobin level in normal range. Desert cooling, water sprinkling and ascorbic acid supplementation decreased the glucose content equally, however, under time limit feeding schedule it remained lowest. Maximum increase in cholesterol was observed in the hens where no heat ameliorating method was practiced. Maximum decline in cholesterol was noted under ascorbic acid supplementation followed by the desert cooling system.



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Decreased cholesterol level in ascorbic acid supplemented hens is fully substantiated by other research (Soni *et al.*, 1984).

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