



Estimation of Interleukin 1 β (IL-1 β) in broilers reared under coloured light emitting diodes vis-à-vis incandescent supplemental lighting

Suresh Kumar^{1*}, Ravi Kant Gupta², R.S.Sethi³

Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, (India)

^{1,2}Department of Livestock Production Management, COVS, GADVASU, Ludhiana (India)

³Department of animal biotechnology, COVS, GADVASU, Ludhiana (India)

ABSTRACT

Present study was performed to estimate Interleukin 1 β (IL-1 β) of broiler birds' in an open-sided house under supplemental lighting programme using light emitting diodes (LEDs) and incandescent light. A total of 240 straight run commercial Cobb broiler chicks were procured, distributed in four different light treatment groups i.e. T₁; white (650nm), T₂; green (565nm) and T₃; blue (430nm) light LED (3 Watt each) and incandescent light bulbs (60 Watt each) as control (Tc) in 12 pens (4x3 factorial design) and reared from day old to 6th week of age. Matching colour curtains were placed inside each pen of shed according to light treatment requirement and each pen was completely enclosed to make it light proof. Light intensity was measured with the help of light intensity meter (Lutron® PLX-111 light meter with range 0-20000 LUX). Interleukin 1 β were estimated using bioassay technology laboratory enzyme- linked immunosorbent assay (ELISA) kit from randomly collected blood from 3 birds of each replicate of each treatment at 21st and 42nd day of experiment period. Interleukin 1 β value on 21st day of experiment period was highest in T₁ group (3104.68 \pm 149.27) and T₃ group (1970.42 \pm 227.02) differ significantly (P<0.05) over control group (Tc) (2824.89 \pm 249.69). Whereas, on 42nd day control group (Tc) was having highest value (4956.58 \pm 396.87) and T₂ (2635.40 \pm 449.51), T₃ group (1974.97 \pm 139.05) differ significantly (P<0.05) over control group (Tc). From the study, it can be concluded that birds under LED light treatment are having improved level of immunity and lower stress level as compared to incandescent light treatment as supplemental light.

Key words: Broiler birds, Incandescent bulb, Interleukin 1 β , LEDs, Supplemental light