

## **Effects of slaughter positions on catecholamine, blood biochemical and electroencephalogram changes in cattle restrained using a modified Mark IV box**

### **ABSTRACT**

The proper slaughter positioning of animals is among the most crucial factors in animal welfare. The lateral position in Halal slaughter is a technique used around the world by Muslims, with a few practicing the upright position. The literature on the effects of slaughter in upright versus lateral positions on pain and stress is scarce. Thus, this study was designed to evaluate the effects of slaughter positions on blood biochemical parameters, plasma catecholamines, and electroencephalographic (EEG) responses. Twenty Brahman crossbred steers were subjected to slaughter in either lateral recumbency (LP) (n = 10) or an upright position (UP) (n = 10). There was a significant increase in adrenaline ( $p < 0.0001$ ) and noradrenaline ( $p < 0.05$ ) at T2 compared to T1 in the animals of both groups. A significant difference ( $p < 0.0001$ ) was observed in the median frequency (MF) and total power (P<sub>tot</sub>) of EEG, parameters for pain and stress, between the animals slaughtered in the upright and the lateral position. However, MF and delta waves were significantly higher ( $p < 0.05$ ) after slaughter in the UP group than in the LP group. The results demonstrate a lesser amount of stress and pain responses among the LP group.

**Keyword:** Halal slaughter positions; Electroencephalographic response; Blood biochemical; Catecholamines; Animal welfare; Cattle