

## Effect of transport distance on pre-slaughter stress, efficacy of water bath stunning and meat quality in broiler chickens

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### Abstract

Effective stunning of broiler chickens before slaughtering reduces the pain and suffering and improves welfare significantly. The objectives of this study were to assess the effect of transport distance on pre-slaughter stress, efficacy of water bath stunning carcass quality and meat quality of broiler chickens. This study was conducted at a commercial meat processing plant using 123 broiler chickens (Body wt:1.8±0.2 kg, 35±2 days old) reared in closed house farms which were located in three different distances to the processing plant (10 km: N=47, 75 km: N=41 and 130km: N=35). Electrical parameters used were: voltage = 20-30V, current = 200-400 mA, frequency = 300 Hz. Statistical analysis was done using SAS university edition software. Severity of panting was higher in the birds transported from 75 km distance while severity of wing flapping at shackling was significantly ( $p<0.05$ ) higher in the birds from 10km distance. Number of birds observed for reflexes and behaviors to detect the efficacy of stunning did not differ among the groups except beak movements which was the lowest ( $P<0.05$ ) in the birds from 75 km distance. The birds transported from 75 km exhibited longer time to loss many reflexes and behaviors after neck cut indicating longer time to death than the other two groups. Higher number of birds from 130 km distance had breast blood spots, wing hemorrhages, broken bones and higher degree of wing tip damages indicating carcass defects were relatively higher in the birds from 130 km than the birds from other two distances. There was no significant difference ( $P>0.05$ ) in ultimate pH and meat color ( $L^*$ ,  $a^*$  and  $b^*$  values) among the groups. However, water holding capacity (WHC) of meat was different ( $P<0.0001$ ) among the groups where birds from 10km had the highest WHC (60.75±0.61%) followed by 130 km (57.58±0.73%) and 75 km (54.52±0.1%). Results concluded that there was no effect of transport distance for the efficacy of water bath stunning and the birds transported from 130 km had lower level of carcass quality. Possibility of higher level of pre-slaughter stress was observed in the birds transported from 75 km distance.

**Keywords:** Broiler chickens, Meat quality, Pre-slaughter stress, Transport distance, Water bath stunning

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