

Meat Qualities and Death on Arrival (DOA) of Broiler Chickens Transported in a Brazilian Tropical Conditions

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Abstract : The objective of this work was to evaluate the influence of microclimatic profile of broiler transport trucks under commercial conditions over the breast meat quality and DOA (Death On Arrival) in a tropical Brazilian regions as the North East where routinely the season is divided into dry and wet seasons. The temperature remains fairly constant and obviously the relative humidity changes accordingly. Three loads of 4,100 forty seven days old broiler were monitored from farm to slaughterhouse in a distance of 4.3 km, morning period of October 2015 rainy days. The profile of the environmental variables inside the container truck throughout the journey was obtained by the installation of thermo anemometers in 6 different locations by monitoring the heat index (HI), air velocity (AV), temperature (T), and relative humidity (RH). Meat qualities were evaluated by determining the occurrence of PSE (pale, soft, exudative) meat and DFD (dark, firm dry) meat. The percentage of birds DOA per loaded truck was determined by counting the dead broiler during the hanging step at the slaughtering plant. The analysis of variance was performed using statistical software (Statistica 8 for windows, Statsoft 2007, Tulsa, OK, USA). The Tukey significance test ($P < 0.05$) was applied to compare means from microenvironmental data, PSE, DFD and DOA. Fillet samples were collected at 24h post mortem for pH e color (L^* , a^* e b^*) determination through the CIELAB system. Results showed the occurrence of 2.98% of PSE and 0.66% de DFD and only 0.016% of DOA and overall the most uncomfortable container location was at the truck frontal inferior presenting 6.25% of PSE. DFD of 2.0% were obtained from birds located at central and inferior rear locations. These values were unexpected in comparison to other results obtained in our laboratories in previous experiments carried out within the country south state. The results reported herein were lower in every aspect. Reasonable explanation would be the shorter distance, wet conditions throughout around 15-20 min journeys and lower T and RH values as observed in samples taken from the rear location as higher DFD values were obtained. These facts mean the animals were not under heat stressful condition but in fact under cold stress conditions as the result of DFD suggested in association to the lower number of DOA.

Keywords : cold stress, DFD, microclimatic profile, PSE

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