

Electrical water bath stunning of broiler chickens – effect on brain waves and physical reflexes

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A variety of electrical parameters is used in commercial slaughterhouses for water bath stunning of broilers. Thus, systematic evaluation of a wide range of parameters is necessary regarding animal welfare and product quality. A total of 1321 broiler chickens were stunned in an electrical water bath using 75 different setups. Birds were submitted to a rectangular AC current and a pulsed DC current from 60 mA to 150 mA, ranging in frequency from 70 Hz to 1500 Hz. Additionally a 2-phase stunning system (Simmons Stunner) was used. After stunning the electroencephalogram was measured for 2 minutes, while physical reflexes of the birds were assessed. Groups were identified that showed an iso-electric EEG immediately after stunning, indicative for deep unconsciousness. Simultaneously various behavioural effects, such as breathing and spontaneous eye blinking were analysed. Both AC and DC stunning proved to be effective. The applied frequency seemed to be most influential on stunning efficiency; values exceeding 400 Hz did not achieve an adequate stun in combination with the maximum tested current of 150 mA for both waveforms. Low frequencies with a minimum of 100 mA resulted in stunning to kill in the majority of birds, especially in groups where an AC current was applied. Future experiments are required to reveal the impact on meat quality of the different stunning groups.

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