

High frequency pre-slaughter electrical stunning in ruminants and poultry for halal meat production: a review

ABSTRACT

The use of high and low electrical frequencies in pre-slaughter electrical stunning and their implications for meat quality and animal welfare in ruminants and poultry are reviewed. There are different views regarding the appropriateness of high and low frequency stunning with respect to religious and animal welfare requirements. High electrical frequency when applied head-to-back does not initiate cardiac arrest, reduces carcass damage, enhances bleeding efficiency and eliminates the need for subsequent electrical immobilization for operator's safety. Conversely, low frequency when similarly applied kills the animal, which has animal welfare advantages, but reduces bleeding efficiency and negatively affects the quality of meat. The ability of high frequency to effectively stun without killing the stunned animal enables the process to meet this fundamental requirement for halal slaughtering when used in head-to-back in ruminants and water bath electrical stunning in poultry. Thus, it is necessary to appraise the efficacy of high and low frequency stunning in order to optimize meat quality and animal welfare attributes vis-a-vis their compliance with halal requirements.

Keyword: Animal welfare; Bleeding efficacy; Electrical stunning; Meat quality; Halal