

Industry News - AM Progress reported in eliminating E. coli in beef using low-voltage electricity

By <u>Chris Scott</u> on 1/18/2012

A team of researchers is reporting the successful eradication of E. coli bacteria growing on the surface of heavily contaminated beef, advancing previous research that used higher electrical currents.

The study involved using 25 mm squares of beef samples in a sodium chloride solution – performing as a conductive electrolyte – and applying bursts of low-frequency alternating electric current ranging from between 300 milliamps to 900 milliamps. Treatment times ranged from two minutes to 16 minutes.

Levels of E. coli O157:H7 were almost completely inactivated, although the researchers noted that the bacterium may have also been affected by active chlorine gas generated at higher AC levels and the effect of sodium chloride, a known antimicrobial.

However, the scientists from Fort Valley State University in Atlanta and Virginia Tech concluded in the study that the levels of E. Coli were "significantly affected" by the intensity and duration of the exposure to low-levels of electricity. They also noted that the level of contamination of the study samples was higher than contamination levels found on beef at commercial slaughterhouses.

The research may open the door for a more inexpensive and easier protocol to reduce the risk of E. coli exposure and subsequent food poisoning among U.S. consumers. It also could potentially reduce the use of more costly or chemical-based procedures sometimes used during beef processing.

An abstract of the study, published in the *International Journal of Food Safety*, *Nutrition and Public Health*, is available <u>here</u>.