

Short, sharp shock treatment for E. coli

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A short burst of low voltage alternating current can effectively eradicate *E. coli* bacteria growing on the surface of even heavily contaminated beef, according to a study published in the *International Journal of Food Safety, Nutrition and Public Health*. The technique offers an inexpensive and easy to implement approach to reducing the risk of food poisoning, which can occur despite handlers complying with hygiene standards.

Food poisoning is a serious public-health issue, especially with the emergence of lethal and highly virulent strains of *Escherichia coli* (*E. coli* O157:H7, for example). Infection with this bacterium causes serious diarrhea, [dehydration](#), kidney problems and can lead to serious long-term problems or even be fatal in children, the elderly and people with pre-existing health problems. Tens of thousands of people are affected by *E. coli* infection each year through eating contaminated beef and other food products. The US Centers for Disease Control and Prevention (CDC) estimates that about 2500 people are hospitalized and there are several dozen deaths each year.

Now, Ajit Mahapatra and colleagues at Fort Valley State University, in Georgia and Virginia Tech have demonstrated that applying a low-voltage alternating current to beef samples inoculated with large numbers of the potentially lethal *E. coli* O157:H7 can almost completely deactivate the [bacterium](#), which is usually present on the surface of contaminated meat. The team points out that the level of contamination used in their tests far exceeded the contamination that would be seen in commercial carcasses after slaughter.

Previous researchers had demonstrated that electricity can kill bacteria effectively. The study by Mahapatra and colleagues proves efficacy against *E. coli* O157:H7 at low voltage and low alternating current. It offers a quick and easy way to decontaminate at-risk, but otherwise safe beef without recourse to microbicidal chemicals or other more complicated [treatment processes](#).

More information: "Efficacy of low-voltage AC for inactivating surface adherent Escherichia coli O157:H7 on beef" in Int. J. Food Safety, Nutrition and Public Health, 2011, 4, 214-224

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