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Cold plasma processing

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Plasma (an energetic ionized gas) is widely used for industrial materials processing to enhance surface properties such as adhesion or printability. However, it has recently shown promise as a non-thermal decontamination tool for food stuffs. This is largely due to new technologies which easily produce non-thermal plasmas (NTPs) at atmospheric pressure. NTP has been shown to injure and inactivate pathogenic bacteria on inert food contact surfaces, on a variety of foods and in liquids. The antimicrobial efficacy of NTP is related to the specific technology used, the power level and the gas mixture used in plasma generation and the intensity and duration of exposure. To date, NTP has been used effectively for surface decontamination on fresh produce, and it is currently being studied under the MEATPACK project (European Commision, FP7) as en efficient tool for in-package decontamination of meat products, which would represent a global breakthrough for the meat industry in terms of shelf-life extension. Different types of meat, comprising both cooked and raw meat, combined with different gas blends for Modified Atmosphere (MA) Packaging has been included in the study. Therefore, the combined effect of MA-packaging and NTP treatment is being investigated in deep not only from the microbiological decontamination perspective but also from the effects on meat quality and changes in food packaging materials after the plasma treatment.

Biography

Carmen Bueno-Ferrer graduated in Food Science and Technology at the University of Granada (Spain). On June 2012 she was awarded her PhD in Chemistry at University of Alicante (Polymers and Nanomaterials Analysis group), for research on development of biocomposites based on vegetable oils for food packaging applications. She is currently undertaking a Postdoctoral research in the School of Food Sciences at Dublin Institute of Technology (Ireland), where she is carrying out the evaluation of changes in meat quality and different food packaging materials as affected by cold plasma discharge used for in-pack sterilization. She has published 10 peer-reviewed articles and 5 book chapters as well as participated in several international conferences.

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