Abstract Submitted
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Damages on Bacteria Irradiated by Microwave-excited Atmospheric Pressure Plasmas TATSUYA OGAWA, KAZUO TAKAHASHI, Kyoto Institute of Tecnology, TAKUYA URAYAMA, Adtec Europe Ltd., SHINJI AOKI, Adtec Plasma Tecnology Co.Ltd. — The sterilization mechanism was analyzed in atmospheric microwave-excited plasmas. The bacteria on stainless steel were exposed to plasmas. The effect of plasma on sterilization was evaluated by colony counting method. The XPS was employed to analyze chemical bond composition changing with killing bacteria. The surviving bacteria decreased with plasma exposure time. On the bacteria surface, the -C-H-, –C-C-, -C=O- and -NH-C=O bonds decreased, and the -C-O-, -C-N-, -C-N^+- and COOH bonds increased with the time. Changing in the chemical composition on the bacteria surface corresponds to damage of cell wall resulting in killing of bacteria.

Tatsuya Ogawa
Kyoto Institute of Tecnology

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