

Abstract Submitted  
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**Disinfection effect of non-thermal atmospheric pressure plasma for foodborne bacteria**<sup>1</sup> MOHAMMAD RASEL PERVEZ, TAKANORI INOMATA, TATSUO ISHIJIMA, MAKIKO KAKIKAWA, YOSHIHIKO UESUGI, YASUNORI TANAKA, Kanazawa University, TOSHIHIRO YANO, Kanazawa Gakuin Junior College, SHOJI MIWA, Ishikawa Agriculture and Forestry Research Center, AKINORI NOGUCHI, Sodick Co., Ltd — Non-thermal atmospheric pressure plasma (NAPP) exposure can be a suitable alternative for bacteria inactivation in food processing industry. Specimen placed in the enclosure are exposed to various reactive radicals produced within the discharge chamber. It is also exposed to the periodic variation of the electric field strength in the chamber. Dielectric barrier discharge is produced by high voltage pulse ( $V_{pp} = 18$  kV, pulse width  $20 \mu\text{s}$ , repetition frequency  $10$  kHz) in a polypropylene box (volume =  $350 \text{ cm}^3$ ) using helium as main feed gas. Inactivation efficiency of NAPP depends on the duration of NAPP exposure, applied voltage pulse strength and type, pulse duration, electrode separation and feed gas composition. In this study we have investigated inactivation of *Bacillus licheniformis* spore as an example of food borne bacteria. Keeping applied voltage, electrode configuration and total gas flow rate constant, spores are exposed to direct NAPP for different time duration while  $\text{O}_2$  concentration in the feed gas composition is varied. 10 minutes NAPP exposure resulted in  $\sim 3$  log reduction of *Bacillus licheniformis* spores for 1%  $\text{O}_2$  concentration (initial concentration  $\sim 10^6$  / specimen).

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