

PT-P006

## Measurement of Hydroxyl Radical Density at Bio-Solutions Generated from the Atmospheric Pressure Non-Thermal Plasma Jet

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Atmospheric pressure non-thermal plasma of the needle-typed interaction with aqueous solutions has received increasing attention for their biomedical applications [1]. In this context, surface discharges at bio-solutions were investigated experimentally. We have generated the non-thermal plasma jet bombarding the bio-solution surface by using an Ar gas flow and investigated the emission lines by OES (optical emission spectroscopy) [2]. Moreover, The non-thermal plasma interaction with bio-solutions has received increasing attention for their biomedical applications. So we researched, the OH radical density of various biological solutions in the surface by non-thermal plasma were investigated by Ar gases. The OH radical density of DI water; deionized water, DMEM Dulbecco's modified eagle medium, and PBS; 1x phosphate buffered saline by non-thermal plasma jet. It is noted that the OH radical density of DI water and DMEM are measured to be about  $4.33 \times 10^{16} \text{ cm}^{-3}$  and  $2.18 \times 10^{16} \text{ cm}^{-3}$ , respectively, under Ar gas flow 250 sccm (standard cubic centimeter per minute) in this experiment. The OH radical density of buffer solution such as PBS has also been investigated and measured to be value of about  $2.18 \times 10^{16} \text{ cm}^{-3}$  by the ultraviolet optical absorption spectroscopy.

**Keywords:** Atmospheric pressure plasma, Biological solution, Ultraviolet optical absorption Spectroscopy