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Disinfection of Staphylococcus Aureus by pulsed non-thermal atmospheric plasma jet SHAHRIAR MIRPOUR, MAHMOOD GHORAN-NEVISS, FARHAD SHAHGOLI, Plasma Physics Research Center, Science Research Branches, Islamic Azad University, Tehran, Iran — The aim of this paper was to study the effect of low-temperature atmospheric plasma jet on non-pathogenic bacteria's colonies. In this regard, Germicidal effect of time and distance of ICP He and He/N₂ plasma jet on Staphylococcus Aureus were reported. The gas discharges were generated by a 40 KHz high voltage power supply which led to the inductively coupled plasma. The results showed that He/N₂ enhance the sterilization time in comparison of He plasma. To the best of our knowledge this is the first study which has compared the effect of sterilization of ICP Helium and Helium-Nitrogen plasma in listed conditions. Also, the distance dependence showed that the germicidal effect was not linear the distance of electrode and sample. The protein leakage test and SEM of bacteria morphology confirmed the sterilization effect of non-thermal atmospheric pressure plasma jet.

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