The atmospheric-pressure (AP) plasma jet has recently been used in emerging novel biomedical applications. Besides its sterilization effects, the first practical studies on plasma-based treatment of chronic wounds or tumor treatment with on AP plasma jet was very promising [1,2]. These plasma jet sources could generate numerous chemical species of reactive oxygen species (ROS) and reactive nitrogen species (RNS) when it contacts with water surface. This ROS having very short lifetime and extremely reactive properties is used to sterilize the biomaterials and these species are inside the biological cells and near the interface between the plasma zone and cells. These hydroxyl radical, OH, of ROS as well as nitric oxide, NO, can be generated by simple nonthermal bioplasma jet source operated at the atmospheric pressure when it contacts with the water surface. Especially, hydroxyl radical and nitric oxide species are a very important role in the biological and chemical decontamination of media in this situation. If the technical requirements for medical instrumentation are to be met, advanced plasma sources must have specified radical species. It is very important to investigate the hydroxyl radical density and the nitric oxide density in needle-typed plasma jet since it plays a crucial role in interaction between the living body and plasma. We have generated the needle-typed plasma jet bombarding the water surface by using an Ar gas flow and investigated the emission lines by OES (optical emission spectroscopy).


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