In dental clinics, caries is one of the highest incidence diseases in human, and Streptococcus mutans (S. mutans) is the most contributing cariogenic bacteria in oral environment. The primary step in the occurrence of dental caries is the colonization of S. mutans and the formation biofilm on tooth surfaces. In this study, a direct-current, atmospheric-pressure, Ar/O2 (2%) cold plasma microjet (PMJ) was used to treat distilled water for 20 min to create plasma treated water (PTW). S. mutans biofilm, growing for 2 days on the acrylic resin, was exposed to fresh PTW to evaluate its inactivate ability. A complete 7-log reduction was achieved in 15 min exposure. Confocal Scanning Laser Microscopy shows PTW induced the total destruction of S.mutans biofilm. Optical emission spectroscopies (OES) were used to evaluate the reactive species generated by PMJ. These results suggest that PTW is highly promising to be used as dental-caries-preventive mouthwash. Detailed experimental setup and results will be discussed at the conference.


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