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Editorial Open Access

Microbiological Application of Gas Plasma Technology

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Editorial

Gas plasma is considered the fourth state of matter after gases, solids and liquids. In nature, more than 99% of matter is in the gas plasma state, including the interior of stars as well as aurora and thunder [1]. Gas plasma can be artificially generated by various types of discharge including arc, corona, DC (direct current), glow, high/low frequency, micro, pulse, and streamer.

The practical application of gas plasma technology is very broad and includes energy production, medicine, dentistry, material processing, environmental science and agriculture [2-4]. Of particular importance is the recent development of gas plasma technology for microbiological applications [4].

Microbiological risk factors are important issues in medicine, dentistry and agriculture. Effective antisepsis, disinfection and sterilization of medical devices is crucial for preventing infection, controlling contamination and eliminating iatrogenic diseases. Sources of microbial contamination include seeds, water, soil and fertilizer in addition to dust, insects, animal feces and field workers. Equipment and tools used during the pre-harvest/harvesting period and transportation/packaging of agricultural products as well as food processing machinery should be thoroughly disinfected and decontaminated. Therefore, it is crucial to develop novel methods of disinfection and sterilization. Recently, the effectiveness of gas plasma technology to eradicate various types of microbes such as viruses, bacteria and fungi as well as toxins has been demonstrated [5-11]. In this regard, gas plasma technology is a promising method for achieving disinfection and sterilization in a broad range of applications and will thereby contribute to preventing the spread of harmful microbes [12].

Taken together, gas plasma technology provides an excellent platform for the prevention and control of infectious diseases. We believe that new developments in gas plasma technology will further improve the effectiveness of this methodology.

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