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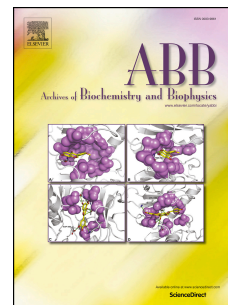
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## Cold Plasma Inactivation of Chronic Wound Bacteria

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### Abstract

Cold plasma is partly ionized non-thermal plasma generated at atmospheric pressure. It has been recognized as an alternative approach in medicine for sterilization of wounds, promotion of wound healing, topical treatment of skin diseases with microbial involvement and treatment of cancer. Cold plasma used in wound therapy inhibits microbes in chronic wound due to its antiseptic effects, while promoting healing by stimulation of cell proliferation and migration of wound relating skin cells. In this study, two types of plasma systems are employed to generate cold plasma: a parallel plate dielectric barrier discharge and a capillary-guided corona discharge. Parameters such as applied voltage, discharge frequency, treatment time and the flow of the carrier gas influence the cold plasma chemistry and therefore change the composition and concentration of plasma species that react with the target sample. Chronic wound that fails to heal often infected by multidrug resistant organisms makes them recalcitrant to healing. Methicillin-resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa* (*P. aeruginosa*) are two common bacteria in infected and clinically non-infected wounds. The efficacies of the cold plasma generated by the two designs on the inactivation of three different isolates of MRSA and four isolates of *P. aeruginosa* are reported here.

**Keywords** Cold plasma; Chronic wound bacteria inactivation; Dielectric Barrier Discharge; Corona Discharge, Non thermal plasma, wound healing

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