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## Colloidal silver fabrication using the spark discharge system and its antimicrobial effect on *Staphylococcus aureus*.

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### Abstract

Nanoscale techniques for **silver** production may assist the resurgence of the medical use of **silver**, especially given that pathogens are showing increasing resistance to antibiotics. Traditional chemical synthesis methods for **colloidal silver** (CS) may lead to the presence of toxic chemical species or chemical residues, which may inhibit the effectiveness of CS as an antibacterial agent. To counter these problems a **spark discharge system** (SDS) was used to fabricate a suspension of **colloidal silver** in deionized water with no added chemical surfactants. SDS-CS contains both metallic **silver** nanoparticles (Ag(0)) and ionic **silver** forms (Ag(+)). The antimicrobial affect of SDS-CS on *Staphylococcus aureus* was studied. The results show that CS solutions with an ionic **silver** concentration of 30 ppm or higher are strong enough to destroy *S. aureus*. In addition, it was found that a solution's antimicrobial potency is directly related to its level of **silver** ion concentration.

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**MeSH Terms, Substances**

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**LinkOut - more resources**

