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**SILVER VEIN GRAPHITE COMPOSITE AS ANTIBACTERIAL AGENT AGAINST
*Staphylococcus aureus***

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ABSTRACT

The spread of antibiotic-resistant bacteria has become a worldwide issue. There is a great demand for a new generation of antibacterial agents that can effectively kill pathogenic bacteria. In recent years, various approaches to antimicrobial treatment have been developed. Silver is an effective antibacterial agent for many microbial pathogens and it can act against a much broader spectrum of microbial species including gram-positive and gram-negative bacteria. In the present work, Sri Lankan vein graphite was fabricated into silver vein graphite composite and novel antibacterial material was developed. Silver vein graphite composite was synthesized by reduction of silver ions in silver nitrate solution using formaldehyde as a reducing agent. The resulting silver vein graphite composite was characterized by scanning electron microscopy and X-ray diffractometry. It was found that the AgNPs are deposited on the surface of graphite. Antibacterial properties of synthesized materials were tested against *Staphylococcus aureus* using shake flask method. A commercial antibiotic (Ofloxacin-200 mg) was used as positive control and modified graphite and purified graphite as negative controls. The samples were drawn periodically and number of colony-forming units was enumerated by plate count method. During the antibacterial test, rapid resistivity of the composite material to *Staphylococcus aureus* was obtained with efficiency of 97.4 %. Therefore, this study suggests that silver vein graphite composite could be used as an effective material in antimicrobial treatment.

Keywords: Vein Graphite, Silver, *Staphylococcus aureus*