



**Original article**

**Antimicrobial activity and biosynthesis of nanoparticles by endophytic bacterium inhabiting *Coffea arabica* L.**

**S. Baker\*, S. Shreedharmurthy**

Herbal Drug Technological Laboratory, Department of Studies in Microbiology, University of Mysore, Manasagangotri, Mysore 570 006, Karnataka, India.

\*Corresponding author; Herbal Drug Technological Laboratory, Department of Studies in Microbiology, University of Mysore, Manasagangotri, Mysore 570 006, Karnataka, India.

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**ABSTRACT**

The interface between endophytes and nanomaterials is a relatively new and unexplored area the present study evaluates screening of bacterial endophytes from surfaced sterilized leaf and stem segments of agro economical plant *Coffea arabica* L. towards synthesis of silver nanoparticles and antimicrobial metabolites. Among thirty two endophytes isolated nine isolates exhibited antimicrobial activity among which one bacterium was capable of extracellular synthesis of silver nanoparticles upon evaluation of supernatant with 1 mM of silver nitrate, biosynthesis of silver nanoparticles were assessed by UV-Visible Spectroscopy and the bacterium was capable of secreting antimicrobial secondary metabolites upon crude ethyl acetate extract evaluated for antimicrobial activity against panel of both gram positive and gram negative as well as phytopathogenic fungi. Partial characterization was carried out via bioautographic technique with *R<sub>f</sub>* value 0.3 and 0.6 exhibiting antimicrobial activity against MRSA strain. Further studies in this area will be promising enough for molecular characterization of endophytic bacterium and chemical profiling of antimicrobial metabolites at the same time physiochemical characterization of nanoparticles will be valuable to reveal the size and shape.