

## Antimicrobial Evaluation of Fluorescent *Pseudomonas* sp. Inhabiting Medicinal Plant *Annona squamosa* L.

Syed Baker and S. Satish\*

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

(Received: 22 July 2012; accepted: 17 September 2012)

The present study was designed and executed to screen bacterial endophytes from medicinal plant *Annona squamosa* L. The obtained isolates were evaluated for antimicrobial activity, based on the higher inhibitory activity further studies were carried out. Among the isolated endophytes, fluorescent bacteria expressed significant activity against the all test pathogens which was the subject of the present investigation. Based on the 16s rRNA and biochemical tests, the bacterium belonged to the genus *Pseudomonas* sp. Crude ethyl acetate extract of the isolate was evaluated for antimicrobial activity against clinically important Gram positive and Gram negative bacteria via disc diffusion assay, minimal inhibitory concentration and bioautography. MIC concentration of the ethyl acetate extract varied from  $0.19 \mu\text{g mL}^{-1}$  to  $25.0 \mu\text{g mL}^{-1}$  against the test pathogens. Further purification and characterization of crude ethyl acetate extract will be promising enough to reveal any novel metabolites of pharmaceutical importance.

**Key words:** Bacterial endophytes, antimicrobial activity, fluorescent *Pseudomonas* sp.

The accelerating haunt for new antibiotics has upsurge due to increasing drug resistant microorganisms to existing drugs, the appearance of life-threatening viruses and the tremendous increase in the incidence of fungal infections has been a major concern across the globe, which in turn resulted for new scientific discoveries to combat existing problem. Plant source expressed promising results but slow growing rate and harvesting of rare endangered species pose a risk and imbalance to biodiversity of plants<sup>1</sup>. Chemical diversity bearing pharmaceutical potential has reached beyond the plant kingdom by dwelling alternative resource of microorganisms which forms a huge diversity in nature and has generated more attention and interest in recent decades. Among the richness of microbial world encompasses a plethora of endophytic entities occupying utterly millions of unique biological niches in higher plants at various,

many times unusual, environments. The term *endophyte* (Gr. *endon*, within; *phyton*, plant) was first coined by de Bary (1866) and has become deeply embedded in the literature ever since. At present, endophytic microorganisms are defined as "microbes that colonize living, internal tissues of plants without causing any immediate, overt negative effects"<sup>2</sup>. These endophytes can mimic the chemistry of their respective host plants and produce almost similar bioactive natural products or derivatives that are more active than those of their respective host<sup>3</sup>.

Perusal of studies reported so far envisioned that endophytes forms ware house of biologically active compounds. Modern technologies have opened new avenue on endophytic research for highly sustainable and economically feasible novel natural products at large scale via fermentation compared to any other sources which are presumed to push forward the frontiers in drug discovery research. Ongoing global efforts to discover antimicrobial compounds from endophytic plethora have yielding significant

\* To whom all correspondence should be addressed.  
Tel.: +91 821 2419734(Off); +91 9448323129 (Cell);  
E-mail:satish.micro@gmail.com