



Antimicrobial Activity of Endophytic Microorganisms Isolated from *Allium Sativum*

U. Dutta, D. Khajuria and J.D. Bandral

Division of Microbiology, Division of FST, SKUAST-Jammu-180 009, India
E-mail: deepikakhajuria02@gmail.com

Abstract: Endophytes are endosymbionts, may be fungus or bacteria, that live inside the plants without showing any disease symptoms. These microorganisms produced a plethora of chemical substances that is beneficial for the growth and development of their host. *Allium sativum* contain compound with antimicrobial, anticancer and antioxidant activity. In present study, 20 bacterial and 15 fungal endophytes were isolated from healthy leaves and bulbs of *Allium sativum* which were collected from different locations of Jammu. All isolates were screened for their antimicrobial activity against human pathogens *Pseudomonas aeruginosa* (MTCC741) and *Salmonella typhimurium* (MTCC98) and plant pathogens *Rhizactonia solani* and *Macrophomina phaseolina*. Out of 20 bacterial endophytes ALR-2, ALR-3, ABC-6 and ABC-7 showed significant results against *S. typhi*. ALM-5, ABC-6 and ABC-7 isolates showed significant results against *P.aeruginosa* whereas ALM-5, ALG-9, and ABC-6, showed t against *R. solani*. Among fifteen fungal endophytes, the isolates ALFR-1, ALFG-3, ALFR-6, ABFM-6 and ABFR-8 showed best results against *P. aeruginosa* ALFG-3, ALFR-6, ABFM-6 and ABFR-8 isolates showed significant results against *S. typhi* whereas ALFR-1 (39.60%) and ABFR-8 (31.85%) significantly inhibit the mycelial growth of *Rhizactonia solani*. None of the bacterial and fungal endophyte showed antimicrobial activity against *M. phaseolina*. The effective bacterial isolates were identified on the basis of their morpho taxonomic and biochemical characteristics and the isolates identified belonged to *Pseudomonas* sp., *Bacillus* sp. and *Burkholderia* sp. whereas based on morpho taxonomic characteristic the effective fungal isolates were identified as *Alternaria* sp., *Aspergillus* sp. *Phoma* sp. *Cladosporium* sp. and *Fusarium* sp.

Keywords: *Allium sativum*, Endophytes, Human pathogens, Plant pathogens
