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## ANTIBIOTIC PEPTIDES AND ANTIMICROBIAL SECONDARY METABOLITES FROM ENDOPHYTES OF SEaweEDS

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**E**ndophytic bacteria are the bacteria which reside in symbiotic association inside the cell. They have been shown to produce the same metabolites as that of seaweeds from which they are isolated. They also show many unusual but useful characteristics like production of vitamins, growth hormones for seaweeds, some host defence chemicals and metabolites. These endophytes can be isolated from the seaweeds and can be analyzed for their different activities in-vitro using different methods. Marine macroalgae are known to carry diverse bacterial communities which interact with their hosts in both harmful and beneficial ways. Algae hosts provide the bacteria with a rich source of carbon in the form of carbohydrate polysaccharides such as fucoidan, agar and alginate, which the bacteria enzymatically degrade. Thus, the major objective of the present study was to isolate, identify and characterize endophyte bacterial communities of different seaweed species. Antibiotic peptides are one of the most important secondary metabolites produced by bacteria. These peptides are potent, broad spectrum antibiotics which demonstrate potential as novel therapeutic agents. Due to vast array of resistivity against antibiotics shown by microorganisms; thus need of antimicrobial agent has come on the market last 30 years. The solution to this problem is peptide antibiotics. Peptide antibiotics have direct activity on the cell-wall of microorganisms causing disruption of cell membrane. Endophytic bacterial isolates were identified to species level by 16S rRNA gene sequence homology analysis and encompassed Gram-negative and Gram positive bacterial taxa. All bacterial isolates were screened for antimicrobial activity against the pathogenic test strains. This study provides the first account of the diversity and composition of bacterial populations of endophytes and demonstrates the ability of these bacteria to produce antimicrobial compounds. Despite recent advances in metagenomics, this study highlights the fact that traditional culturing technologies remain available tool for the discovery of novel bioactive compounds of bacterial origin.

**Keywords**— Sea-weeds, endophytic bacteria, antibiotic peptides, antimicrobial activity, protein purification, 16S rRNA sequence homology.

### Biography

Dr. Chanda V. Berde Parulekar has completed her PhD at the age of 28 years from Microbiology Department of Goa University, Goa, India following 2 years of postdoctoral studies from the same department. She is involved in teaching and research in the field of Biotechnology for the past 12 years. She has 30 research publications in reputed journals, 2 book publications, 2 chapters in books in the pipeline and is an Editorial board member of JPABS. She has guided 62 M.Sc. research projects in Biotechnology and Microbiology. She has also attended more than 15 conferences, national and international. She is on the Board of Directors of Society for Environment, Biodiversity and Conservation, India.

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