

## *List of Figures*

Figure 1.1: Types of environmental stress factors.....	2
Figure 1.2: Saline soil and Sodic soils.....	3
Figure 1.3: Countries affected by salt stress - World map.....	4
Figure 1.4a: Distribution of aridity – India.....	5
Figure 1.4b: Salt affected soil (SAS) – India.....	6
Figure 1.5: PGPR traits involved in abiotic stress amelioration in plants.....	13
Figure 1.6: PGPR activity for salt stress alleviation.....	14
Figure 2.1: Consortia preparation.....	31
Figure 2.2: Effect of salt stress on bacterial growth.....	34
Figure 2.3: IAA production in individual strains under salt stress.....	35
Figure 2.4: IAA production in PGPR consortia under salt stress.....	36
Figure 2.5: Siderophore production by individual strains under salt stress.....	38
Figure 2.6: Siderophore production in bacterial consortia under no salt condition.....	38
Figure 2.7: Percent variation in siderophore production under salt stress by the consortia.....	39
Figure 2.8: Zone of exhibition on EDTA plates indicating cross utilization of siderophores..	39
Figure 2.9: PGPR traits under salt stress - A comprehensive study.....	44
Figure 2.10: HCN production in Pseudomonas strains under salt stress.....	45
Figure 2.11: Antifungal activity of Pseudomonads against F. udum under salt stress.....	47
Figure 2.12: Antifungal activity of Pseudomonads against R. solani under salt stress.....	47
Figure 2.13: PGPR activity of the individual strains under salt stress - Heat map.....	48
Figure 2.14: PGPR activity of consortia under salt stress - Heat map.....	49
Figure 3.1: Consortia preparation.....	57
Figure 3.2: Q-PCR cycle for 16S rRNA amplification.....	63

Figure 3.3: P-solubilization under salt stress - Individual strains.....	65
Figure 3.4: P-solubilization under salt stress - Consortia.....	67
Figure 3.5: Growth of individual strains in P-deficiency under salt stress.....	68
Figure 3.6: Growth of consortia in P-solubilization under salt stress.....	69
Figure 3.7: Population density in consortia in P-deficiency under salt stress - Semi-quantitative estimation.....	70
Figure 3.8: Population density of individual strains in consortia in P-deficiency under salt stress - Image lab Analysis.....	72
Figure 3.9: Growth of bacterial strains under salt stress.....	74
Figure 3.10: Effect of salt stress on bacterial consortia.....	75
Figure 3.11: Log copy number values for individual strains in consortia under salt stress.....	78
Figure 4.1: Germination of Pigeon pea seeds under salt stress.....	93
Figure 4.2: Plant growth and survival under salt stress in different PGPR treatments.....	94
Figure 4.3: Percentage variation in shoot/root length under salt stress and PGPR treatment...	95
Figure 4.4: Total biomass content in plants given salt stress and PGPR treatment.....	96
Figure 4.5: Percent moisture content in shoot/root under salt stress and PGPR treatment.....	99
Figure 4.6: Soil electrical conductivity (EC) at different salt concentrations.....	100
Figure 4.7: Total protein in plants given PGPR treatment under salt stress.....	102
Figure 4.8: Total proline in plants given PGPR treatment under salt stress.....	102
Figure 4.9: Total soluble sugar in plants given PGPR treatment under salt stress.....	103
Figure 4.10: Leaf carotenoid content in plants given PGPR treatment under salt stress.....	104
Figure 4.11: Chlorophyll a/b ratio in plants given PGPR treatment under salt stress.....	104
Figure 4.12: Total chlorophyll content in plants given PGPR treatment under salt stress.....	105
Figure 4.13: Physical growth parameters for plants treated with individual PGPR and consortia in presence of <i>F. udum</i> .....	105