

LIST OF FIGURES

Figure No.	TITLE
Chapter 1	
Figure 1.1	Schematic diagram of a thin section of a cyanobacterial cell
Figure 1.2	Possible Metabolic interaction of vegetative cell and heterocyst cell
Figure 1.3	Mechanism of nitrogen status sensing by cyanobacteria
Figure 1.4	Regulation mediated by NtcA in Cyanobacteria
Figure 1.5	Upregulation of genes during heterocyst differentiation
Figure 1.6	Interdependence of NtcA and HetR for expression
Figure 1.7	Role of NrrA in <i>hetR</i> expression and heterocyst formation
Figure 1.8	Possible interaction of various genes for pattern formation in <i>Anabaena</i> PCC 7120
Figure 1.9	Comparative analysis of <i>nifD</i> element from different cyanobacteria
Figure 1.10	Excision of <i>nifD</i> element
Figure 1.11	Rearrangement of <i>hupL</i> gene
Figure 1.12	Genetic organization of <i>fdxN</i> element of <i>Anabaena</i> PCC 7120
Figure 1.13	Conserved domain of XisC
Figure 1.14	Molecular mechanism of the initiation of heterocyst differentiation
Chapter 2	
Figure 2.1	Plasmid map and restriction digestion pattern of pxis-gm
Figure 2.2	Plasmid map and restriction digestion pattern of pMCxis-gm
Figure 2.3	Plasmid map and restriction digestion pattern of pNG1
Figure 2.4	Plasmid map and restriction digestion pattern of pNG2
Figure 2.5	Restriction digestion pattern of substrate plasmid and <i>xisA</i> containing plasmid
Chapter 3	
Figure 3.1	Strategy used for the construction of substrate plasmids
Figure 3.2	PCR amplification products with modified target sites followed by <i>lacZ</i> PCR amplification from NG7-13
Figure 3.3	Restriction digestion profile of NG7/T and NG8/T plasmids
Figure 3.4	Restriction digestion profile of NG9/T & NG10/T plasmids
Figure 3.5	Restriction digestion profile of NG11/T and NG12/T plasmids
Figure 3.6	Plasmid map and restriction digestion profile of NG-13/T and NG7-BR
Figure 3.7	Plasmid map and restriction digestion profile of NG8-BR and NG9-BR plasmids
Figure 3.8	Plasmid map and restriction digestion profile of NG10-BR and NG11-BR plasmids

Figure 3.9	Plasmid map and restriction digestion profile of NG12 & NG13-BR plasmid
Figure 3.10	Protocol used for endonuclease assay
Figure 3.11	Restriction digestion profile of plasmids isolated from <i>E. coli</i> containing substrate plasmid and <i>xisA</i> plasmid
Figure 3.12	Restriction digestion profile of plasmids isolated from <i>E. coli</i> containing substrate plasmid and <i>xisA</i> plasmid
Chapter 4	
Figure 4.1	Possible outcomes of site-specific recombination
Figure 4.2	Intermolecular and intramolecular recombination events during integration of λ genome into bacterial host genome
Chapter 5	
Fig 5.1	Plasmid map and restriction digestion pattern of pNT184
Fig 5.2	Plasmid map and restriction digestion pattern of pCT184
Fig 5.3	Plasmid map and restriction digestion pattern of pNTCT184
Fig 5.4	Plasmid map and restriction digestion pattern of pCTC
Fig 5.5	Plasmid map and restriction digestion pattern of pXisR
Fig 5.6	Restriction digestion profile of NT184 and pNTCT184 with pMX32
Fig 5.7	Restriction digestion profile of pCT184 with pMX32
Fig 5.8	Restriction digestion profile of pCTC with pMX32
Fig 5.9	Restriction digestion profile of pXisR with pMX32
Fig 5.10	Restriction digestion profile of pNT-T with pAM1500
Fig 5.11	Restriction digestion profile of pCTC and pAM1500
Fig 5.12	Restriction digestion profile of pCT-A and pAM1500
Fig 5.13	Restriction digestion profile of pXisR and pAM1500
Fig 5.14	Conserved domains of XisA and XisC as determined by conserved domain search utility of BLAST.
Fig 5.15	Sequence similarity between XisA and XisC
Chapter 6	
Fig 6.1	Putative promoter region of <i>xisA</i>
Fig 6.2	Strategy used for cloning of P _{xisA}
Fig 6.3	Plasmid map and restriction digestion pattern of pBBSk/PXis
Fig 6.4	Plasmid map and restriction digestion pattern of P _{xis} ::gfp plasmid
Fig 6.5	Fluorescence shown by various cultures at log phase on LB medium
Fig 6.6	Comparative analysis of Log phase, LB grown <i>E. coli</i> DH5 α and JM101 strain
Fig 6.7	Comparative analysis of Log phase, LB grown <i>E. coli</i> JM101 and JM101 <i>recA</i> ⁻ strain containing P _{xis} ::gfp

Fig 6.8	Comparative analysis of Log phase, LB grown <i>E. coli</i> JM101 strain containing Pxis::gfp with and without NifA strain
Fig 6.9	Comparative analysis of Log phase, LB grown <i>E. coli</i> JM101 strain <i>recA</i> ⁻ containing Pxis::gfp with and without NifA strain
Fig 6.10	Comparative analysis of Log phase, LB grown <i>E. coli</i> JM101 strain containing Pxis::gfp with NifA and NtcA
Fig 6.11	Fluorescence shown by various <i>E. coli</i> cultures at stationary phase on LB medium
Fig 6.12	Comparative analysis of stationary phase, LB grown <i>E. coli</i> DH5 α , JM101 and JM101 <i>recA</i> ⁻ containing Pxis::gfp
Fig 6.13	Comparative analysis of Stationary, LB grown <i>E. coli</i> JM101 strain containing Pxis::gfp with and without NifA strain
Fig 6.14	Comparative analysis of Stationary, LB grown <i>E. coli</i> JM101 strain containing Pxis::gfp with NifA and NtcA
Fig 6.15	Comparative analysis of various <i>E. coli</i> cultures at log phase and stationary phase on LB medium
Fig 6.16	Comparative analysis of various <i>E. coli</i> cultures grown up to log phase on M9 minimal medium
Fig 6.17	Comparison of <i>E. coli</i> DH5 α Vs JM101 strain containing pXis::gfp
Fig 6.18	Comparison of <i>E. coli</i> JM101 and JM101 <i>recA</i> ⁻ strain containing pXis::gfp with and without NifA.
Fig 6.19	Comparison of <i>E. coli</i> JM101 strain containing pXis::gfp with NtcA and NifA.
Fig 6.20	Fluorescence of various stationary phase grown <i>E. coli</i> cultures in M9 minimal medium
Fig 6.21	Comparison of <i>E. coli</i> DH5 α and JM101 strain grown up to stationary phase in M9 minimal medium
Fig 6.22	Comparative analysis of <i>E. coli</i> JM101 strains with and without NifA, at stationary phase on M9 minimal medium
Fig 6.23	Comparative analysis of <i>E. coli</i> JM101 strain with NifA and NtcA
Fig 6.24	Comparison of GFP Unit of <i>E. coli</i> stationary phase grown cultures in Luria broth and M9 minimal medium
Fig 6.25	Colony PCR on <i>nptII</i> from <i>Anabaena</i> PCC 7120 transformants
Fig 6.26	<i>Anabaena</i> PCC 7120 filaments showing GFP after transformation Pxis::gfp