

LIST OF FIGURES

| | |
|--|----|
| Figure 1 : Classification of Small Regulatory RNAs..... | 12 |
| Figure 2 : Diagrammatic representation of regulatory role of <i>cis</i> -encoded sRNA | 13 |
| Figure 3 : Pictorial representation of regulatory role of <i>trans</i> -encoded sRNA..... | 15 |
| Figure 4 : Protein binding sRNAs..... | 16 |
| Figure 5 : Regulatory mechanism of gene expression by sRNA | 19 |
| Figure 6: Translational activation by interference in the ribonucleolytic activity..... | 20 |
| Figure 7 : Virulence factors of <i>Staphylococcus aureus</i> | 37 |
| Figure 8: Breakdown of hyaluronic acid by bacterial hyaluronate lyase..... | 42 |
| Figure 9: A schematic representation of the molecular organization, signal biosynthesis and transduction cascade of the <i>agr</i> quorum-sensing system. | 44 |
| Figure 10: Secondary structure of RsaF predicted by <i>S</i> -fold..... | 65 |
| Figure 11: <i>In Silico</i> analysis of RsaF and its interaction with predicted targets by Target RNA program..... | 68 |
| Figure 12: PCR amplification, cloning and sub-cloning of RsaF..... | 69 |
| Figure 13: Pictorial representation of 3-step fusion PCR to generate gene disruption cassette | 70 |
| Figure 14: RsaF Gene disruption cassette construction and confirmation | 70 |
| Figure 15: pTZRsaFGDC clone confirmation | 71 |
| Figure 16: pMADRsaFGDC clone confirmation..... | 72 |
| Figure 17: Confirmation of <i>rsaF</i> gene disruption in <i>S. aureus</i> Newman | 72 |
| Figure 18: Expression analysis of RsaF overexpression by northern blotting. | 73 |
| Figure 19: Influence of RsaF levels on the expression of HysA in <i>S. aureus</i> Newman..... | 74 |
| Figure 20: Influence of RsaF on biofilm formation..... | 75 |
| Figure 21: Fluorescence microscopy images of biofilms formed on the glass cover slip. | 76 |
| Figure 22: Expression of <i>SplD</i> under altered levels of RsaF..... | 77 |
| Figure 23: Interaction of RsaF with <i>hysA</i> and <i>splD</i> mRNAs by electrophoretic mobility shift assay..... | 78 |
| Figure 24: Half-life determination of <i>hysA</i> / <i>splD</i> mRNA in <i>S. aureus</i> strains..... | 80 |
| Figure 25: Complex and multi-factorial regulatory network of Hyaluronate lyase and <i>SplD</i> regulation in <i>S. aureus</i> | 81 |