

CONTENTS

Synopsis	i-xix
List of Publications	xx-xxi

PART A

Chapter I: Stereoselective Synthesis of Stagonolide-G from D-mannitol	1 - 44
1.0 Introduction	1
1.0.1 Previous approaches to the synthesis of Stagonolides	2
1.1 Present Work	19
1.2 Results and Discussion	19
1.2.1 Retrosynthetic strategy	19
1.2.2 Synthesis of Stagonolide-G	20
1.3 Conclusions	26
1.4 Experimental Section	27
1.5 References and notes	41
1.6 Spectra	
Chapter II: Attempted Synthesis of ansamycin macrolide, Hygrocin-A	45 - 73
2.0 Introduction	45
2.0.1 Previous approaches for the synthesis of ansamycin class of natural products	46
2.1 Present Work	51
2.2 Results and Discussion	52
2.2.1 Retrosynthetic strategy	52
2.2.2 Synthesis of fragments	53
2.2.3 Attempted methods for the rearrangement	56
2.3 Conclusions	57
2.4 Experimental Section	57

2.5	References and notes	71
2.6	Spectra	

PART B

Chapter III: Synthesis and anticancer activity of tetrazole derivatives from Baylis-Hillman allyl amines **74 - 114**

3.0	Introduction	74
3.0.1	Introduction to Baylis-Hillman reaction	74
3.0.2	Essential Components	75
3.0.3	Application of the Baylis-Hillman Methodology in cycloaddition reactions	78
3.0.4	Introduction to Tetrazoles	85
3.1	Present Work	86
3.2	Results and Discussion	86
3.2.1	Synthesis of tetrazole derivatives from Baylis-Hillman allyl amines	86
3.2.2	Biological evaluation	92
3.2.3	X-ray crystallographic analysis	93
3.2.4	DNA binding studies	95
3.3	Conclusions	97
3.4	Experimental Section	98
3.5	References and notes	108
3.6	Spectra	

Chapter IV: Facile synthesis of thieno[2,3-*b*]pyridine derivatives from 2-chloro Nicotinaldehydes as antimicrobial agents **115 - 137**

4.0	Introduction	115
4.0.1	Previous approaches for the preparation of thieno pyridine derivatives	117

4.1	Present Work	118
4.2	Results and Discussion	119
	4.2.1 Synthesis of 2-Chloronicotinaldehydes	119
	4.2.2 Preparation of Enamides	120
	4.2.3 Synthesis of Thieno[2,3- <i>b</i>]Pyridine derivatives	123
	4.2.4 Biological Results and Discussion of synthesized thieno derivatives	126
4.3	Conclusions	128
4.4	Experimental Section	129
4.5	References and notes	134
4.6	Spectra	

**Chapter V: Synthesis of biologically active Isatin derivatives from oxidation of
Indoles using PCC/PANI combination 138 - 154**

5.0	Introduction	138
	5.0.1 Various literature methods approaches for the synthesis of isatins from indoles and other substrates	139
5.1	Present Work	141
5.2	Results and Discussion	142
5.3	Conclusions	147
5.4	Experimental Section	147
5.5	References and notes	152
5.6	Spectra	

Appendix 155