

## LIST OF FIGURES

Figure No.	Title	Page No.
<b>PART I SYNTHESIS AND CHARACTERIZATION</b>		
1.1	Mechanism of Schiff base formation	2
1.2	Example for template synthesis	5
1.3	<sup>1</sup> Hnmr spectrum of the Schiff base APTSC	23
1.4	COSY spectrum of the Schiff base APTSC	23
1.5	<sup>13</sup> Cnmr spectrum of the Schiff base APTSC	24
1.6	DEPT 135 spectrum of the Schiff base APTSC	24
1.7	HMQC spectrum of the Schiff base APTSC	24
1.8	Mass spectrum of the Schiff base APTSC	25
1.9	Structure of APTSC and thioketo-thioenol tautomerism	26
1.10	<sup>1</sup> Hnmr spectrum of the Schiff base APSC	29
1.11	COSY spectrum of the Schiff base APSC	29
1.12	<sup>13</sup> Cnmr spectrum of the Schiff base APSC	30
1.13	DEPT 135 spectrum of the Schiff base APSC	30
1.14	HMQC spectrum of the Schiff base APSC	30
1.15	Mass spectrum of the Schiff base APSC	31
1.16	Structure of APSC and keto-enol tautomerism	32
1.17	<sup>1</sup> Hnmr spectrum of the Schiff base APPH	35
1.18	COSY spectrum of the Schiff base APPH	35
1.19	<sup>13</sup> Cnmr spectrum of the Schiff base APPH	35
1.20	DEPT 135 spectrum of the Schiff base APPH	36
1.21	HMQC spectrum of the Schiff base APPH	36
1.22	Mass spectrum of the Schiff base APPH	37
1.23	Structure of APPH	38
1.24	Structures of the metal complexes of APTSC	44
1.25	Structures of the metal complexes of APSC	51
1.26	Structures of complexes of APPH	60
1.27	Synthetic strategy of arylated derivative (Meerwin arylation)	64
1.28	Synthesis of CPFASC	65
1.29	<sup>1</sup> Hnmr spectrum of the Schiff base CPFASC	66

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
1.30	<sup>13</sup> Cnmr spectrum of the Schiff base CPFASC	67
1.31	Mass spectrum of the Schiff base CPFASC	67
1.32	Structure of CPFASC and keto-enol tautomerism	69
1.33	Synthesis of CPTASC	69
1.34	<sup>1</sup> Hnmr spectrum of the Schiff base CPTASC	71
1.35	<sup>13</sup> Cnmr spectrum of the Schiff base CPTASC	71
1.36	Mass spectrum of the Schiff base CPTASC	72
1.37	Structure of CPTASC and thioketo-thioenol tautomerism	72
1.38	Synthesis of CPFAPH	73
1.39	<sup>1</sup> Hnmr spectrum of the Schiff base CPFAPH	75
1.40	<sup>13</sup> Cnmr spectrum of the Schiff base CPFAPH	75
1.41	Mass spectrum of the Schiff base CPFAPH	75
1.42	Structure of CPFAPH	76
1.43	Structures of complexes of CPFASC	82
1.44	Structures of complexes of CPTASC	89
1.45	Structures of complexes of CPFAPH	96
1.46	<sup>1</sup> Hnmr spectrum of the Schiff base FAABA	99
1.47	<sup>13</sup> Cnmr spectrum of the Schiff base FAABA	100
1.48	Mass spectrum of FAABA	101
1.49	Structure of FAABA	102
1.50	Structures of metal complexes of FAABA	107
<b>PART II CORROSION INHIBITION STUDIES</b>		
2.1	Three electrode circuitry	145
2.2	Tafel extrapolation method	148
2.3	Linear polarization method	148
2.4	Equivalent circuit fitting	151
2.5	Nyquist or Cole-Cole plot	152
2.6	Combined impedance and Bode plot	152
2.7	Variation of corrosion rates of CS with the concentration of Schiff bases APSC, APTSC and APPH in 1.0 M HCl	156
2.8	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of Schiff bases, APSC, APTSC and APPH on CS in 1.0 M HCl	158

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2.9	UV-Vis spectrum of APPH in HCl	160
2.10	Geometries of Schiff base molecules derived from 3-acetylpyridine	160
2.11	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of Schiff bases, APSC, APTSC and APPH and their parent compounds 3AP, SC, TSC and PH in 1.0 M HCl	161
2.12	Langmuir adsorption isotherm for APSC on CS in 1.0 M HCl	162
2.13	Langmuir adsorption isotherm for APTSC on CS in 1.0 M HCl	162
2.14	Langmuir adsorption isotherm for APPH on CS in 1.0 M HCl	163
2.15	Arrhenius plots for the corrosion of CS in the absence and presence of APSC	164
2.16	Plots of $\log(K/T)$ vs $1000/T$ for the corrosion of CS in the absence and presence of APSC	164
2.17	Arrhenius plots for the corrosion of CS in the absence and presence of APTSC	165
2.18	Plots of $\log(K/T)$ vs $1000/T$ for the corrosion of CS in the absence and presence of APTSC	165
2.19	Arrhenius plots for the corrosion of CS in the absence and presence of APPH	165
2.20	Plots of $\log(K/T)$ vs $1000/T$ for the corrosion of CS in the absence and presence of APPH	165
2.21	SEM image of bare CS surface	168
2.22	SEM image of CS surface in 1.0 M HCl (blank)	168
2.23	SEM image of CS surface in 1.0 M HCl and APSC (1.0 mM, 48h)	168
2.24a	Nyquist plots of CS in the presence and absence of APSC in 1.0 M HCl	171
2.24b	Bode plots of CS in the presence and absence of APSC in 1.0 M HCl	171
2.25a	Nyquist plots of CS in the presence and absence of APTSC in 1.0 M HCl	172
2.25b	Bode plots of CS in the presence and absence of APTSC in 1.0 M HCl	172
2.26a	Nyquist plots of CS in the presence and absence of APPH in 1.0 M HCl	172
2.26b	Bode plots of CS in the presence and absence of APPH in 1.0 M HCl	172
2.27	Comparison of the corrosion inhibition efficiencies ( $\eta_{EIS}\%$ ) of Schiff bases, APSC, APTSC and APPH on CS in 1.0 M HCl	173
2.28a	Tafel plots of CS in in the presence and absence of APSC 1.0	174

Figure No.	Title	Page No.
	M HCl	
2.28b	Linear polarization curves of CS in the presence and absence of APSC in 1.0 M HCl	174
2.29a	Tafel plots of CS in the presence and absence of APTSC in 1.0 M HCl	174
2.29b	Linear polarization curves of CS in the presence and absence of APTSC in 1.0 M HCl	174
2.30a	Tafel plots of CS in the presence and absence of APPH in 1.0 M HCl	175
2.30b	Linear polarization curves of CS in the presence and absence of APPH in 1.0 M HCl	175
2.31	Comparison of the corrosion inhibition efficiencies ( $\eta_{pol}\%$ ) of Schiff bases, APSC, APTSC and APPH on CS in 1.0 M HCl	176
2.32	Comparison of the corrosion rates of CS in the presence and absence of Schiff bases, APSC, APTSC and APPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	179
2.33	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of Schiff bases, APSC, APTSC and APPH on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	180
2.34	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of APPH and its parent compounds in the presence and absence of KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	184
2.35	The corrosion inhibition mechanism of APPH +KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	185
2.36	Freundlich adsorption isotherm for APSC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	187
2.37	El-Awady adsorption isotherm for APTSC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	187
2.38a	Nyquist plots for CS in the presence and absence of APSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	188
2.38b	Bode plots for CS in the presence and absence of APSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	188
2.39a	Nyquist plots for CS in the presence and absence of APTSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	190
2.39b	Bode plots for CS in the presence and absence of APTSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	190
2.40a	Nyquist plots for CS in the presence and absence of APPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	190
2.40b	Bode plots for CS in the presence and absence of APPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	190

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2.41	Comparison of the inhibition efficiencies ( $\eta_{EIS\%}$ ) of Schiff bases, APSC, APTSC and APPH on CS 0.5 M H <sub>2</sub> SO <sub>4</sub>	191
2.42	Nyquist plots of CS in the presence of APPH+ KI in 0.5 M H <sub>2</sub> SO <sub>4</sub>	193
2.43	Langmuir adsorption isotherm for APPH on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	193
2.44	Langmuir adsorption isotherm for APPH+ KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	193
2.45a	Tafel plots of CS in the presence and absence of APSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	195
2.45b	Linear polarization curves of CS in the presence and absence of APSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	195
2.46a	Tafel plots of CS in the presence and absence of APTSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	196
2.46b	Linear polarization curves of CS in the presence and absence of APTSC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	196
2.47a	Tafel plots of CS in the presence and absence of APPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	196
2.47b	Linear polarization curves of CS in the presence and absence of APPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	196
2.48	Comparison of the corrosion inhibition efficiencies ( $\eta_{pol\%}$ ) of Schiff bases, APSC, APTSC and APPH on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	197
2.49	Tafel plots of CS in the presence of KI and APPH + KI in 0.5 M H <sub>2</sub> SO <sub>4</sub>	198
2.50a	SEM image of bare CS surface	200
2.50b	SEM image of CS surface in 0.5 M H <sub>2</sub> SO <sub>4</sub>	200
2.50c	SEM image of CS surface in 0.5 M H <sub>2</sub> SO <sub>4</sub> with APPH (0.8mM)	200
2.50d	SEM image of CS surface in 0.5 M H <sub>2</sub> SO <sub>4</sub> with APPH (0.8mM) + 0.2 mM KI	200
2.51	Structure of NPFASC	202
2.52	Variation of corrosion rate of CS with concentration of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC in 1.0 M HCl	204
2.53	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC on CS in 1.0 M HCl	205
2.54	Geometry of FAABA	207
2.55	Geometry of CPFASC	207
2.56	Geometry of CPFAPH	207

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2.57	Geometry of NPFASC	207
2.58	Geometry of CPTASC	207
2.59	Geometry of APFASC	207
2.60	Conversion of NPFASC into APFASC	209
2.61	Langmuir adsorption isotherm for FAABA on CS in 1.0 M HCl	210
2.62	Freundlich adsorption isotherm for CPFASC on CS in 1.0 M HCl	210
2.63	Temkin adsorption isotherm for NPFASC on CS in 1.0 M HCl	211
2.64	Langmuir adsorption isotherm for CPFAPH on CS in 1.0 M HCl	211
2.65	Langmuir adsorption isotherm for CPTASC on CS in 1.0 M HCl	211
2.66a	Nyquist plots of CS in the presence and absence of FAABA 1.0 M HCl	213
2.66b	Bode plots of CS in the presence and absence of FAABA in 1.0 M HCl	213
2.67a	Nyquist plots of CS in the presence and absence of CPFASC in 1.0 M HCl	214
2.67b	Bode plots of CS in the presence and absence of CPFASC in 1.0 M HCl	214
2.68a	Nyquist plots of CS in the presence and absence of CPFAPH in 1.0 M HCl	214
2.68b	Bode plots of CS in the presence and absence of CPFAPH HCl in 1.0 M HCl	214
2.69a	Nyquist plots of CS in the presence and absence of NPFASC in 1.0 M HCl	214
2.69b	Bode plots of CS in the presence and absence of NPFASC in 1.0 M HCl	214
2.70a	Nyquist plots of CS in the presence and absence of CPTASC in 1.0 M HCl	216
2.70b	Bode plots of CS in the presence and absence of CPTASC in 1.0 M HCl	216
2.71	Comparison of corrosion inhibition efficiencies ( $\eta_{EIS}\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC on CS in 1.0 M HCl	217
2.72a	Tafel plots of CS in the presence and absence of FAABA in 1.0 M HCl	219
2.72b	Linear polarization curves of CS in the presence and absence of FAABA in 1.0 M HCl	219

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2.73a	Tafel plots of CS in the presence and absence of CPFASC in 1.0 M HCl	221
2.73b	Linear polarization curves for CS in the presence and absence of CPFASC in 1.0 M HCl	221
2.74a	Tafel plots of CS in the presence and absence of CPFAPH in 1.0 M HCl	221
2.74b	Linear polarization curves of CS in the presence and absence of CPFAPH in 1.0 M HCl	221
2.75a	Tafel plots of CS in the presence and absence of NPFASC in 1.0 M HCl	221
2.75b	Linear polarization curves of CS in the presence and absence of NPFASC in 1.0 M HCl	221
2.76a	Tafel plots of CS in the presence and absence of CPTASC in 1.0 M HCl	222
2.76b	Linear polarization curves of CS in the presence and absence of CPTASC in 1.0 M HCl	222
2.77	Comparison of corrosion inhibition efficiencies ( $\eta_{pol}\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC in 1.0 M HCl	222
2.78	Variation of corrosion rates of CS with the concentration of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	226
2.79	Comparison of corrosion inhibition efficiencies ( $\eta_w\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	226
2.80	Freundlich adsorption isotherm for FAABA on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	231
2.81	Freundlich adsorption isotherm for CPFAPH on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	231
2.82	Langmuir adsorption isotherm for NPFASC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	231
2.83	Langmuir adsorption isotherm for CPTASC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	231
2.84a	Nyquist plot of CS in the presence and absence of FAABA in 0.5 M H <sub>2</sub> SO <sub>4</sub>	235
2.84b	Bode plots of CS in the presence and absence of FAABA in 0.5 M H <sub>2</sub> SO <sub>4</sub>	235
2.85a	Nyquist plots of CS in the presence and absence of CPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236
2.85b	Bode plots of CS in the presence and absence of CPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
2.86a	Nyquist plots of CS in the presence and absence of CPFAPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236
2.86b	Bode plots of CS in the presence and absence of CPFAPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236
2.87a	Nyquist plots of CS in the presence and absence of NPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236
2.87b	Bode plots of CS in the presence and absence of NPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	236
2.88a	Nyquist plots of CS in the presence and absence of CPTASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	237
2.88b	Bode plots of CS in the presence and absence of CPTASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	237
2.89	Comparison of corrosion inhibition efficiencies ( $\eta_{EIS}\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	237
2.90a	Tafel plots of CS in the presence and absence of FAABA in 0.5 M H <sub>2</sub> SO <sub>4</sub>	240
2.90b	Linear polarization curves of CS in the presence and absence of FAABA in 0.5 M H <sub>2</sub> SO <sub>4</sub>	240
2.91a	Tafel plots of CS in the presence and absence of CPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.91b	Linear polarization curves of CS in the presence and absence of CPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.92a	Tafel plots of CS in the presence and absence of CPFAPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.92b	Linear polarization curves of CS in the presence and absence of CPFAPH in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.93a	Tafel plots of CS in the presence and absence of NPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.93b	Linear polarization curves of CS in the presence and absence of NPFASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	241
2.94a	Tafel plots of CS in the presence and absence of CPTASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	242
2.94b	Linear polarization curves of CS in the presence and absence of CPTASC in 0.5 M H <sub>2</sub> SO <sub>4</sub>	242
2.95	Comparison of corrosion inhibition efficiencies ( $\eta_{pol}\%$ ) of Schiff bases, FAABA, CPFASC, CPFAPH, NPFASC and CPTASC on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	242
2.96	Langmuir adsorption isotherm for FAABA+ KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	247



Figure No.	Title	Page No.
2.97	Langmuir adsorption isotherm for CPFASC+ KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	247
2.98	Langmuir adsorption isotherm for CPFAPH+ KI on CS in 0.5 M H <sub>2</sub> SO <sub>4</sub>	247
2.99	Variation of synergism parameter (S <sub>0</sub> ) with concentration of Schiff bases FAABA, CPFASC and CPFAPH	249
<b>PART III ANTIBACTERIAL STUDIES</b>		
3.1	Structure of Cisplatin	262
3.2	DNA-cis platin adduct	262
3.3	Structure of metal-EDTA complex	263
3.4	Dimercapol chelation	263
3.5	Structure of Dimercapto succinic acid	263
3.6	Structure of zinc pyrithione	263
3.7	Structure of sodium aurothiomalate	264
3.8	Structure of D-penicillamine	264
3.9	Structure of Penicillin-G	265
3.10	Structure of Ampicillin	265
3.11	Structure of Streptomycin	266
3.12	Structure of Gentamicin	266
3.13	Structure of Erythromycin	267
3.14	Structure Cefotaxime	267
3.15	Micrograph of <i>E. coli</i>	269
3.16	Micrograph of <i>S. aureus</i>	270
3.17	Micrograph of <i>B. subtilis</i>	271
3.18	Micrograph of <i>B. thuringiensis</i>	272
3.19	Micrograph of <i>P. vulgaris</i>	274
3.20	Micrograph of <i>E. aerogenes</i>	274
3.21	Mechanism of action of antibiotics in microbial cells	281
3.22	Illustration of how some antimicrobial agents are rendered ineffective	283
3.23	Antibacterial activity of Ag(I)-FAABA complex against <i>S. aureus</i>	300
3.24	Antibacterial activity of streptomycin against <i>S. aureus</i>	300

Figure No.	Title	Page No.
<b>PART IV CYCLIC VOLTAMMETRIC STUDIES</b>		
4.1	Cyclic voltammogram of a reversible system	320
4.2	Cyclic voltammogram of an irreversible system	321
4.3	Cyclic voltammogram of a quasi reversible system	322
4.4a	Cyclic voltammogram of APSC at scan rate of 20mV/s	330
4.4b	Cyclic voltammogram of APSC at scan rates 20-80 mV/s	330
4.5	The $i_p$ - $v^{1/2}$ curves for the Schiff base APSC	331
4.6	Consecutive CV diagrams for APSC at scan rate of 100mV/s with 5 cycles	331
4.7a	Cyclic voltammogram of VO(II)-APSC complex at scan rate 40mV/s	333
4.7b	Cyclic voltammogram of VO(II)-APSC complex at scan rates 40-100 mV/s	333
4.8	The $i_p$ - $v^{1/2}$ curves for VO(II)-APSC complex	333
4.9a	Cyclic voltammogram of Ni(II)-APSC complex at scan rate of 40mV/s	335
4.9b	Cyclic voltammogram of Ni(II)-APSC complex at scan rates 40-100 mV/s	335
4.10	The $i_{pa}$ - $v^{1/2}$ curves for Ni(II)-APSC complex	335
4.11a	Cyclic voltammogram of Cu(II)-APSC complex at scan rate of 20mV/s	337
4.11b	Cyclic voltammogram of Cu(II)-APSC complex at scan rates 20-100 mV/s	337
4.12	The $i_{pc}$ - $v^{1/2}$ curves for Cu(II)-APSC complex	337
4.13	The $i_{pa2}$ - $v^{1/2}$ curves for Cu(II)-APSC complex	337
4.14	Consecutive CV diagrams for Cu(II)-APSC at scan rate of 100mV/s with 5 cycles	338
4.15	Proposed mechanism for the redox process of Cu(II)-APSC complex	338
4.16a	Cyclic voltammogram of Cd(II)-APSC complex at scan rate of 40mV/s	341
4.16b	Cyclic voltammogram of Cd(II)-APSC complex at scan rates 40-100 mV/s	341
4.17	The $i_{pa}$ - $v^{1/2}$ curves for Ni(II)-APSC complex	341
4.18	Consecutive CV diagrams for Cd(II)-APSC at scan rate of 100mV/s with 5 cycles	341
4.19a	Cyclic voltammogram of APPH at scan rate of 40mV/s	343
4.19b	Cyclic voltammogram of APPH at scan rates 40-100mV/s	343
4.20	The $i_{pa}$ - $v^{1/2}$ curves of Schiff base APPH	343

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
4.21a	Cyclic voltammogram of Cu(II)-APPH complex at scan rate of 20mV/s	344
4.21b	Cyclic voltammogram of Cu(II)-APPH complex at scan rates 20-80mV/s	344
4.22	The $i_{pa1}$ - $v^{1/2}$ curves of Cu(II)- APPH complex	346
4.23	The $i_{pa2}$ - $v^{1/2}$ curves of Cu(II)- APPH complex	346
4.24a	Cyclic voltammogram of FAABA at scan rate of 40mV/s	347
4.24b	Cyclic voltammogram of FAABA at scan rates 40-100mV/s	347
4.25	The $i_p$ - $v^{1/2}$ curves of Schiff base FAABA	348
4.26a	Cyclic voltammogram of Cu(II)-FAABA complex at scan rate of 20mV/s	350
4.26b	Cyclic voltammogram of Cu(II)-FAABA complex at scan rates 20-100mV/s	350
4.27	The $i_{pc}$ - $v^{1/2}$ curves for Cu(II)-FAABA complex	350
4.28	Consecutive CV diagrams for Cu(II)-FAABA complex at scan rate of 100mV/s with 5 cycles	350
4.29	Cyclic voltammogram of APTSC at scan rate of 40mV/s	351
4.30a	Cyclic voltammogram of Cu(II)-APTSC complex at scan rate of 40mV/s	353
4.30b	Cyclic voltammogram of Cu(II)-APTSC complex at scan rates 40-80mV/s	353
4.31	The $i_{pa}$ - $v^{1/2}$ curves for Cu(II)-APTSC complex	353
4.32	Proposed mechanism for the redox process of Cu(II)-APTSC complex	354
4.33	Consecutive CV diagrams for Cu(II)-APTSC at scan rate of 100mV/s with 5 cycles (vs Ag-AgCl electrode)	354