

LIST OF TABLES

Table No	Title of the table	Page No
1	Synthetic details and physical characteristics of the metal complexes	37-40
2	Analytical data of the ligands of HBABS, FMABS, TMABS, TMPCH and TMPCA	45
3	Analytical data of the metal complexes of HBABS, FMABS and TMABS	68-69
4	Molar conductance ($\text{Ohm}^{-1} \cdot \text{cm}^2 \cdot \text{mol}^{-1}$) data for different electrolyte types in common organic solvents	72
5	Molar conductance ($\text{Ohm}^{-1} \cdot \text{cm}^2 \cdot \text{mol}^{-1}$) data for the metal complexes	73-74
6	Thermal behavior of the metal complexes of TMABS	76
7	IR absorption frequencies (cm^{-1}) of HBABS, FMABS and TMABS their metal complexes	84-85
8	Magnetic moment (B.M.) data of the complexes	97-98
9	Electronic spectral data of the metal complexes of HBABS, FMABS and TMABS	100
10	ESR Parameters of Cu(II) complexes of HBABS, FMABS and TMABS	116
11	Analytical data of the metal complexes of TMPCH	126
12	Molar conductance data for the present metal complexes	127
13	IR absorption frequencies (cm^{-1}) of TMPCH metal complexes	128
14	Magnetic moment (B.M.) data of the complexes of TMPCH	139
15	Electronic spectral data of the metal complexes of TMPCH	142
16	Analytical data of the metal complexes of TMPCA	154
17	Molar conductance data for the metal complexes of TMPCA	156
18	Thermal behaviour of the metal complexes of TMPCA	157
19	IR absorption frequencies (cm^{-1}) of TMPCA and its metal complexes	163
20	Magnetic moment (B.M.) data of the complexes	170
21	Electronic spectral data of the metal complexes of TMPCA	173
22	Antibacterial activity of the compounds	199
23	Antifungal activity of the compounds	200

LIST OF FIGURES		
FIGURE NO.	TITLE OF FIGURE	Page No
1	4-((2-Hydroxybenzylidene)amino)benzenesulfonamide (HBABS)	24
2	4-((Furan-2-ylmethylene)amino)benzenesulfonamide (FMABS)	24
3	4-((Thiophen-2-ylmethylene)amino)benzenesulfonamide (TMABS)	25
4	N'-((Thiophen-2-yl)methylene)pyridine-4-carbohydrazide (TMPCH)	25
5	N-(Thiophen-2-ylmethylidene)-pyrazine-2-carboxamide (TMPCA)	26
6	Mass Spectrum of Ligand HBABS	47
7	¹ H-NMR Spectrum of ligand HBABS	48
8	IR Spectrum of Ligand HBABS	49
9	Mass Spectrum of Ligand FMABS	51
10	¹ H-NMR Spectrum of ligand FMABS	52
11	IR Spectrum of Ligand FMABS	53
12	Mass Spectrum of Ligand TMABS	55
13	¹ H-NMR Spectrum of ligand TMABS	56
14	IR Spectrum of Ligand TMABS	57
15	Mass Spectrum of Ligand TMPCH	59
16	¹ H-NMR Spectrum of ligand TMPCH	60
17	IR Spectrum of Ligand TMPCH	61
18	Mass Spectrum of Ligand TMPCA	63
19	¹ H-NMR Spectrum of ligand TMPCA	64
20	IR Spectrum of Ligand TMPCA	65
21	Thermo gram of Ru-TMABS	77
22	Thermo gram of Ni-TMABS	78
23	Thermo gram of Cu-TMABS	79
24	Thermo gram of Pd-TMABS	80
25	Thermo gram of Zn-TMABS	81
26	IR spectrum of Fe-TMABS	86
27	IR spectrum of Co-TMABS	87
28	IR spectrum of Ni-TMABS	88
29	IR spectrum of Cu-TMABS	89
30	IR spectrum of Pd-TMABS	90
31	IR spectrum of Zn-TMABS	91
32	IR spectrum of Hg-TMABS	92
33	Electronic spectrum of Ru-TMABS	101
34	Electronic spectrum of Co-TMABS	102
35	Electronic spectrum of Ni-TMABS	103
36	Electronic spectrum of Cu-TMABS	104
37	Electronic spectrum of Pd-TMABS	105
38	ESR Spectrum of Cu-TMABS	118
39	Structure of Fe(III), Ru(III) and Cu(II) complexes of TMABS	121
40	Structure of Ni(II) and Pd(II) complexes of TMABS	122
41	Structure of Co(II), Zn(II), Cd(II) and Hg(II) complexes of TMABS	123
42	IR spectrum of Fe-TMPCH	129
43	IR spectrum of Ru-TMPCH	130

44	IR spectrum of Co-TMPCH	131
45	IR spectrum of Ni-TMPCH	132
46	IR spectrum of Cu-TMPCH	133
47	IR spectrum of Pd-TMPCH	134
48	IR spectrum of Zn-TMPCH	135
49	IR spectrum of Cd-TMPCH	136
50	IR spectrum of Hg-TMPCH	137
51	Electronic spectrum of Ru-TMPCH	143
52	Electronic spectrum of Co –TMPCH	144
53	Electronic spectrum of Ni –TMPCH	145
54	Electronic spectrum of Cu –TMPCH	146
55	Electronic spectrum of Pd –TMPCH	147
56	ESR spectrum of Cu –TMPCH	148
57	Structure of Fe(III), Ru(III) and Cu(II) complexes of TMPCH	150
58	Structure of Ni(II) and Pd(II) complexes of TMPCH	151
59	Structure of Co(II), (Zn(II), Cd(II) and Hg(II) complexes of TMPCH	152
60	Thermo gram of Ru-TMPCA	158
61	Thermo gram of Co-TMPCA	159
62	Thermo gram of Cu-TMPCA	160
63	Thermo gram of Pd-TMPCA	161
64	IR spectrum of Ru-TMPCA	164
65	IR spectrum of Co-TMPCA	165
66	IR spectrum of Ni-TMPCA	166
67	IR spectrum of Pd-TMPCA	167
68	IR spectrum of Hg-TMPCA	168
69	Electronic spectrum of Ru-TMPCA	174
70	Electronic spectrum of Co-TMPCA	175
71	Electronic spectrum of Ni-TMPCA	176
72	Electronic spectrum of Cu-TMPCA	177
73	Electronic spectrum of Pd-TMPCA	178
74	ESR Spectrum of Cu –TMPCA	180
75	Structure of Fe(III), Ru(III), Co(II), Ni(II), Cu(II) complexes of TMPCA	182
76	Structure of Pd(II) complex of TMPCA	183
77	Structure of Zn(II), Cd(II) and Hg(II) complexes of TMPCA	184
78	Antibacterial activity of the compounds on Gram +ve bacteria <i>Staphylococcus aureus</i> (SA)	201
79	Antibacterial activity of the compounds on Gram +ve bacteria <i>Bacillus Subtilis</i> (BS)	202
80	Antibacterial activity of the compounds on Gram -ve bacteria <i>Salmonella typhi</i> (ST)	203
81	Antibacterial activity of the compounds on Gram -ve bacteria <i>Escherichia coli</i> (E COLI)	204
82	Antifungal activity of the compounds <i>Aspergillus niger</i> (AN)	205
83	Antifungal activity of the compounds <i>Penicillium rubrum</i> .(Pr)	206