

CONTENTS

	Page Nos.
Acknowledgement	i-iv
Contents	v-viii
List of Tables	ix-xiii
List of Figures	xiv-xx
Abbreviations	xxi-xxiv
 CHAPTER - 1 INTRODUCTION	 1-8
1.1 Traditional herbal medicines	1
1.2 Bitters	3
1.3 Bitters and hypoglycemic effect	5
1.4 Selection of plant materials	6
1.5 Diabetes mellitus	7
 CHAPTER - 2 REVIEW OF LITERATURE	 9-47
2.1 <i>Clerodendrum phlomidis</i>	9
2.2 <i>Nymphaea stellata</i>	32
2.3 Research envisaged	47
 CHAPTER - 3 EXPERIMENTAL	 48-80
3.1 Development of quality control parameters	48
3.1.1 Collection and authentication of plant materials	48
3.1.2 Determination of foreign matter	48
3.1.3 Morphology, anatomy, histology and powder microscopy	48
3.1.4 Determination of ash values	49
3.1.5 Determination of extractive values	50

3.1.6	Determination of loss on drying (gravimetric determination)	51
3.1.7	Determination of bitterness value	52
3.1.8	Determination of arsenic and heavy metals	53
3.1.9	Determination of microbial content	53
3.2	Successive extraction	53
3.2.1	Preliminary qualitative phytochemical screening	53
3.2.2	Thin layer chromatographic study	57
3.3	DNA sequence for internal transcribed spacer (ITS) region of <i>C. phlomidis</i>	67
3.4	Isolation and characterization of chemical constituents	68
3.5	Acute toxicity study	69
3.6	Anti-diabetic study	69
3.7	GC-MS analysis of unsaponified matter of petroleum ether fraction of methanol extract of <i>C. phlomidis</i> (UPFMCP)	75
3.8	PTP1B inhibition study	76
3.9	Brine shrimp lethality bioassay	78
3.10	Anti-platelet aggregation activity	79
3.11	Anti-acetylcholineesterase study	80
CHAPTER - 4	RESULTS AND DISCUSSION	81-228
4.1	<i>Clerodendrum phlomidis</i>	81
4.1.1	Development of quality control parameters	81
4.1.2	Plant profile	81
4.1.3	Determination of foreign matter	82
4.1.4	Morphology, anatomy, histology and powder microscopy	82

4.1.5	Proximate analysis	87
4.1.6	Determination of arsenic and heavy metals	90
4.1.7	Determination of microbial content	91
4.1.8	Preliminary qualitative phytochemical screening	91
4.1.9	Thin layer chromatographic study	93
4.1.10	DNA sequence for internal transcribed spacer (ITS) of <i>C. phlomidis</i>	120
4.1.11	Isolation and characterization of chemical constituents	124
4.1.12	Acute toxicity study	141
4.1.13	Anti-diabetic study	142
4.1.14	GC-MS analysis of unsaponified matter of petroleum ether fraction of methanol extract of <i>C. phlomidis</i> (UPFMCP)	158
4.1.15	PTP1B inhibition study	160
4.1.16	Brine shrimp lethality bioassay	165
4.1.17	Anti-platelet aggregation activity	168
4.1.18	Anti-acetylcholineesterase study	174
4.2	<i>Nymphaea stellata</i>	182
4.2.1	Development of quality control parameters	182
4.2.2	Plant Profile	182
4.2.3	Determination of foreign matter	182
4.2.4	Morphology, anatomy, histology and powder microscopy	183
4.2.5	Proximate analysis	188
4.2.6	Elemental analysis	188
4.2.7	Preliminary qualitative phytochemical screening	189
4.2.8	Thin layer chromatographic study	191
4.2.9	Acute toxicity study	209

4.2.10	Anti-diabetic study	209
4.2.11	Isolation and characterization of chemical constituents	221
4.2.12	PTP1B inhibition study	222
4.2.13	Brine shrimp lethality bioassay	223
4.2.14	Anti-platelet aggregation activity	224
4.2.15	Anti-acetylcholineesterase study	227
CHAPTER - 5	SUMMARY AND CONCLUSION	229-234
5.1	<i>Clerodendrum phlomidis</i>	229
5.2	<i>Nymphaea stellata</i>	232
5.3	Conclusion	233
	REFERENCES	235-281
	LIST OF PUBLICATIONS	282