CONTENTS

1. Introduction	1
1.1 Standardization	3
1.1.1 Standardization of botanicals by HPTLC	4
1.1.2 Standardization of herbs using marker compound analysis	5
1.2 Hepatoprotective activity	6
1.2.1 Liver Disorders	7
1.2.2 Investigations of liver functions	8
1.2.3 Evaluation of Hepatoprotective Activity	14
1.2.4 Experimental models for hepatoprotective screening	16
1.2.5 Mechanism of action of some selected hepatotoxins	18
1.3 Hepatoactive Medicaments	20
1.4 Review of selected plant drugs	22
1.5 Research envisaged	27
1.6 References	29
2. Experimental	34
2.1 Pharmacognostic studies	34
2.1.1 Macroscopic evaluation	34
2.1.2 Microscopic evaluation	34
2.2 Proximate analysis	35
2.2.1 Determination of foreign organic matter	35
2.2.2 Loss on Drying	35
2.2.3 Determination of extractive values	35
2.2.4 Ash values	36
2.2.5 Determination of foaming index	36
2.2.6 Estimation of heavy metals	37
2.2.7 Estimation of total phenolic content	37

2.2.8 Estimation of total flavonoid content 39
2.3 Phytochemical studies 42
2.3.1 Successive solvent extraction 42
2.3.2 Qualitative evaluation of successive extracts 43
2.3.3 Thin layer chromatographic studies on the extracts 43
2.3.4 Preparation of selective extracts 44
2.3.5 Fractionation of bio-active extracts 45
2.3.6 Thin layer chromatographic studies on the extracts and their different fractions 46
2.4 Biological screening of extracts and fractions 46
2.4.1 Acute toxicity studies 46
2.4.2 Hepatoprotective activity 47
2.4.2.1 Hepatoprotective activity in vivo 47
2.4.2.2 Hepatoprotective activity in vitro 56
2.5 Isolation and characterisation of active principles from active extracts 60
2.5.1 Isolation of active principles 60
2.5.1.1 Isolation of active principles from *P. daemia* 60
2.5.1.2 Isolation of active principles from *B. montanum* 62
2.5.2 In vitro hepatoprotective activity of isolated compounds 62
2.5.2.1 Hepatic cytotoxicity testing of PD1 and BM1 62
2.5.2.2 Hepatoprotective activity of PD1 and BM1 63
2.5.2.3 Assessment of hepatoprotective activity 63
2.5.2.4 Statistical analysis 64
2.5.3 Characterisation of isolated compounds 64
2.6 High performance thin layer chromatographic analysis 64
2.6.1 Aerial parts of *P.daemia* 65

2.6.1.1 Fingerprint profile of EE, EFEE and AFEFEE 65
2.6.1.2 Estimation of PD1 in ethanol extract 65
2.6.1.3 Estimation of quercetin-3-glucoside in ethanol extract 67
2.6.2 Roots of *B. montanum* 68
2.6.2.1 Fingerprint profile of ME, MFME, EMKMFME and MFMFME 68
2.6.2.2 Estimation of BM1 in methanol extract 68
2.7 References 71

3. Results and Discussion 75-203
4. Summary and Conclusion 204