

Thesis content	Page No.
Chapter 1: General introduction, objective and review of literature	1-27
1.1 Introduction	1-3
1.2 Objectives	4
1.3 Review of literature	5-27
1.3.1 Phytochemical screening of plants	6-8
1.3.2 Antioxidant activity of plants	8-13
1.3.3 Antimicrobial activity of plants	13-21
1.3.4 Hypoglycemic activity of plants	21-26
1.3.5. Effect of antidiabetic compounds isolated from plants	26-27
 Chapter 2: Phytochemical screening, determination of antioxidant and antimicrobial activity of plant extracts	 28-65
2.1 Introduction	28-29
2.2. Materials and methods	29-38
2.2.1. Plant materials	29
2.2.1.1. Collection	29
2.2.1.2. Identification	31
2.2.2. Preparation of plant extracts	31-32
2.2.2.1. Preparation of dried powder	31
2.2.2.2. Preparation of methanol extracts	32
2.2.3. Qualitative screening of phytochemicals	32-34
2.2.3.1 Test for phenol	32
2.2.3.2. Test for flavonoid	32
2.2.3.3. Test for tannin	33
2.2.3.4. Test for alkaloid	33
2.2.3.5. Test for cardiac glycosides	33
2.2.3.6. Test for saponin	33
2.2.3.7. Test for terpenoid	33
2.2.3.8. Test for carbohydrates	33
2.2.3.9. Test for reducing sugar	33
2.2.3.10. Test for protein	34
2.2.3.11. Test for steroid	34
2.2.3.12. Test for anthraquinone	34
2.2.4. Quantitative screening of phytochemicals	34-36
2.2.4.1. Extraction and estimation of total phenol	34
2.2.4.1.1. Extraction of total phenol	34
2.2.4.1.2 Estimation of total phenol	34
2.2.4.2. Extraction and quantification of flavonoid	35
2.2.4.2.1. Extraction of flavonoid	35
2.2.4.2.2. Quantification of flavonoid	35
2.2.4.3. Extraction and estimation of tannin	35
2.2.4.3.1. Extraction of tannin	35
2.2.4.3.2. Estimation of tannin	35
2.2.4.4. Extraction and estimation of carbohydrates	35

2.2.4.4.1. Extraction of total soluble and reducing sugar	35
2.2.4.4.2. Estimation of total soluble sugar	36
2.2.4.4.3. Estimation of reducing sugar	36
2.2.5. Determination of antioxidant activity of plant extracts	36-37
2.2.5.1. DPPH radical scavenging activity	36
2.2.5.2. Hydrogen peroxide scavenging activity	36
2.2.5.3. Nitric oxide radical scavenging activity	37
2.2.5.4. ABTS scavenging activity	37
2.2.6. Determination of antimicrobial activity of plant extracts	37-38
2.2.6.1. Sample preparation	37
2.2.6.2. Preparation of media	38
2.2.6.2.1. Potato Dextrose Agar (PDA)	38
2.2.6.2.2. Nutrient Broth (NB) and Nutrient Agar (NA)	38
2.2.6.3. Antibacterial activity (Well diffusion method)	38
2.2.6.4. Antifungal activity (Radial growth bioassay)	38
2.2.7. Statistical Analysis	38
2.3. Results	39-56
2.3.1. Description of the selected plant	39-42
2.3.2. Qualitative estimation of phytochemicals	42-46
2.3.3. Quantitative estimation of phytochemicals	43-46
2.3.3.1. Total Phenol and Flavonoid content contents	43
2.3.3.2. Total Tannin and carbohydrate contents	44
2.3.4. Antioxidant activity of plant extracts	46-51
2.3.4.1. DPPH radical scavenging activity	46
2.3.4.2. Hydrogen peroxide scavenging activity	46
2.3.4.3. Nitric oxide radical scavenging activity	49
2.3.4.4. ABTS scavenging activity	49
2.3.5. Antimicrobial activity of plant extracts	51-56
2.3.5.1. Antibacterial activity	51-53
2.3.5.2. Antifungal activity	54-56
2.4. Discussion	56-65
Chapter 3: Isolation and characterization of bioactive compound from <i>Thuja orientalis</i> cone	66-75
3.1. Introduction	66
3.2. Materials and methods	67-69
3.2.1. Preparation of extract of <i>Thuja orientalis</i> cone	67
3.2.2. Column chromatography	67
3.2.3. Isolation and characterization of active compound	68
3.2.4. NMR analysis, IR analysis, LC-ESI-MS analysis, Spectrophotometer analysis	69
3.3. Results	69-73
3.4. Discussion	74-75

Chapter 4: Testing of anti-diabetic potential of active compound	76-98
4.1. Introduction	76-77
4.2. Materials and methods	77-83
4.2.1. <i>In vitro</i> α -amylase inhibition activity	77
4.2.2. <i>In vivo</i> test	77-83
4.2.2.1. Animals	77
4.2.2.2. Acute toxicity study	78
4.2.2.3. Induction of experimental diabetes in test animals	78
4.2.2.4. Treatment of diabetic animals	78-79
4.2.2.5. Analytical procedure	79
4.2.2.5.1. Measurement of body weight	79
4.2.2.5.2. Estimation of blood sugar level	79
4.2.2.5.3. Collection of serum	79
4.2.2.5.4. Study of serum biochemical parameters	79-82
4.2.2.5.4.1. Lipid profile analysis	79-80
4.2.2.5.4.2. Liver function test	80-81
4.2.2.5.4.3. Kidney function test	81-82
4.2.2.6. Histology	82-83
4.2.3. Statistical Analysis	83
4.3. Results	83
4.3.1. α -amylase inhibitory activity of Octacosanol	83-84
4.3.2. Acute toxicity study	84
4.3.3. Effect of Octacosanol on STZ-induced diabetic rats	85
4.3.3.1. Body weight	85-86
4.3.3.2. Blood sugar levels	86-88
4.3.3.3. Lipid profiles	88-90
4.3.3.4. Liver enzymes (SGPT and SGOT level)	90-92
4.3.3.5. Kidney functions (serum urea and creatinine level)	92-93
4.3.3.6. Histological data	94
4.4. Discussion	95-98
Conclusion	98-100
Bibliography	101-131
Appendices	A-G