

List of contents

Subject	Page
الاستهلال	i
Dedication	ii
Acknowledgement	iii
Abstract (English)	iv
المستخلص	vi
Contents	viii
List of Figures	xii
List of Tables	xiv
List of abbreviations	xv
Chapter one - Introduction	
1. Introduction	1
1.1. General approach	1
1.2. lipids	1
1.3. Terminology of fatty acid	4
1.4. Structure of fats and oils	4
1.5. Sources of fats and oils	7
1.6. Role of fixed oil and fats in health	8
1.6.1. Source of metabolic energy	8
1.6.2. In growth and development	8
1.6.3. Provision of essential fatty acids (EFA)	9
1.6.4. Supply of Fat–Soluble Vitamins	9
1.6.4.1. Vitamin A	10
1.6.4.2. Vitamin D	11
1.6.4.3. Vitamin E	12

1.6.4.4. Vitamin K	13
1.6.5. Improvement in food palatability	14
1.6.6. Role in immune function	15
1.7. Role of fixed oil and fats in diseases	16
1.7.1. Obesity	16
1.7.2. Coronary heart disease	17
1.7.3. Diabetes	18
1.7.4. Inflammatory diseases	19
1.7.5. Cancer	20
1.8. Toxic fixed oils and fats	22
1.8.1. Cyclopropenes	22
1.8.2. Long-chain monoenes	22
1.8.3. Trans-unsaturated fatty acids	23
1.8.4. Lipid peroxides	24
1.9. Methods of extracting essential oils	25
1.9.1. Maceration	25
1.9.2. Cold pressing	26
1.9.3. Solvent extraction	26
1.9.4. Enfleurage	26
1.9.5. Hydrodistillation	27
1.9.6. CO ₂ and Supercritical CO ₂ extraction	27
1.9.7. Turbo distillation extraction	28
1.9.8. Steam distillation	28
1.10. Gas chromatography mass spectrometry (GC/MS)	28
1.10.1. Uses of gas chromatography mass spectrometry	30
1.11. Antibacterial	30
1.12. The target plants	32
1.12.1. <i>Hibiscus asper</i> Hook. f. <i>malvaceae</i>	32

1.12.2. <i>Merremia (Ipomea) Dissecta</i>	33
1.12.3. <i>Cucumis prophetarum L</i>	35
1.12.4. <i>Citrullus lanatus sub sp. Lanatus cucurbitaceae</i>	37
1.12.5. <i>Cleome gynandra cleomaceae</i>	40
1.9. Aim of the work	43
Chapter two – Material and Methods	
2.1. Materials	44
2.1.1. Plant material	44
2.1.2. Gas chromatography-Mass spectrometry analysis	44
2.1.3. Test organisms	44
2.2. Methods	45
2.2.1. Extraction of oil	45
2.2.2. Gas chromatography-Mass spectrometry analysis	45
2.2.3. Antimicrobial assay	46
Chapter three – Results and Discussion	
3.1. <i>Hibiscus asper</i> oil	48
3.1.1. Constituents of oil	48
3.1.2. Antimicrobial activity	53
3.2. <i>Merremia dissecta</i>	54
3.2.1. Gas chromatography-Mass spectrometry analysis	54
3.2.2. Antimicrobial activity	57
3.3. <i>Cucumis prophetarum</i>	58
3.3.1. Constituents of <i>cucumis prophetarum</i> oil	58
3.3.2. Antimicrobial activity	61
3.4. <i>Citrullus lanatus</i>	62
3.4.1. Gas chromatography-Mass spectrometry analysis	62
3.4.2. Antimicrobial activity	65
3.5. <i>Cleome gynandra</i>	65

3.5.1. Gas chromatography-Mass spectrometry analysis	65
3.5.2. Antimicrobial activity	68
4. Conclusion and Recommendations	69
5. References	