

List of Contents

Examination Committee	II
Acknowledgements	III
List of Contents	IV
List of Figures	VII
List of Photos	VIII
Abstract	IX
Chapter one: Literature Review	1
1.1 Flora of Palestine.....	1
1.2 Medicinal plants in Palestine	1
1.3 Effect of environmental factors on plant characteristics	2
1.4 Plant morphology	4
1.4.1 Plant height and leaf area.....	4
1.4.2 Number of stomata	5
1.5 Plant physiology.....	6
1.5.1 Total chlorophyll content.....	6
1.6 Plant biochemistry.....	6
1.6.1 Effect of environmental factors on essential oil composition.....	6
1.6.2 Essential oil of <i>Teucrium polium</i>	7
1.6.3 HS-SPME-GC-MS	9
Objectives	10
Chapter Two: Materials and Methods	11
2.1 Study sites	11
2.2 Plant sampling.....	12
2.2.1 Study plants.....	12
2.2.1.1 <i>Teucrium polium</i>	14
2.2.1.2 <i>Capparis spinosa</i>	15
2.2.1.3 <i>Paronychia sinaica</i>	15
2.2.1.4 <i>Varthemia iphionoides</i>	15
2.2.1.5 <i>Coridothymus capitatus</i>	16
2.3 Plant morphology	16
2.3.1 Leaf parameters.....	16
2.3.2 Plant height	16
2.3.3 Number of branches	17
2.3.4 Plant average radius.....	17
2.3.5 Stomata Impressions.....	17
2.4 Total chlorophyll content.....	18
2.5 Analysis of the essential oil	19
2.5.1 GC-MS conditions.....	20
2.6 Statistical analysis	20
Chapter Three: Results	21
3.1 Morphological characteristics.....	21
3.1.1 Leaf area	21
3.1.2 Leaf length	23
3.1.3 Leaf width	25
3.1.4 Plant height	28

3.1.5 Plant average radius :.....	30
3.1.6 Number of branches	31
3.1.7 Stomata density	32
3.2 Total chlorophyll content.....	33
3.3 Biochemical characteristics (essential oil analysis)	34
3.3.1 Common compounds.....	35
3.3.2 Main compounds	40
3.3.3 Geographic differences in the essential oil composition	42
3.3.4 Components classification	42
Chapter Four : Discussion	44
4. 1 Plant Morphology.....	44
4.1.1 Leaf parameters and plant height	44
4.1.2 Stomata density	46
4.2 Total chlorophyll content.....	47
4.3 Essential oil composition.....	47
4.3.1 Quantity of essential oil component	48
4.3.2 Essential oil composition:	49
Conclusion	51
References	52
Appendix (A)	62
Table (1) Component of the essential oil of <i>Teucrium polium</i> of replicate (1) brought from Dahrya site in summer	62
Table (2): Component of the essential oil of <i>Teucrium polium</i> of replicate (2) brought from Dahrya site in summer	64
Table (3): Component of the essential oil of <i>Teucrium polium</i> of replicate (3) brought from Dahrya site in summer	66
Table (4): Component of the essential oil of <i>Teucrium polium</i> of replicate (1) brought from Sorif site in winter	68
Table (5): Component of the essential oil of <i>Teucrium polium</i> of replicate (2) brought from Sorif site in winter	70
Table (6): Component of the essential oil of <i>Teucrium polium</i> of replicate (3) brought from Sorif site in winter	72
Table (7): Component of the essential oil of <i>Teucrium polium</i> of replicate (1) brought from Dahrya site during winter.....	74
Table (8): Component of the essential oil of <i>Teucrium polium</i> of replicate (2) brought from Dahrya site during winter.....	76
Table (9): Component of the essential oil of <i>Teucrium polium</i> of replicate (3) brought from Dahrya site during winter.....	78
Table (10) Component of the essential oil of <i>Teucrium polium</i> of replicate (1) brought from Sorif site during Summer	80
Table (11) Component of the essential oil of <i>Teucrium polium</i> of replicate (2) brought from Sorif site during summer.....	83
Table (12) Component of the essential oil of <i>Teucrium polium</i> of replicate (3) brought from Sorif site during summer.....	85
الملخص باللغة العربية	87