

LIST OF TABLES

	Page
Table I. Chemical composition of <i>O. basilicum</i> L. essential oil in Egypt using GC/MS.....	5
Table II. Chemical structure of compounds identified in <i>O. basilicum</i> L. essential oil.....	6
Table III. Chemical composition of essential oil of <i>P. anisum</i> L. using GC/MS....	13
Table IV. Chemical structure of compounds identified in <i>P. anisum</i> L. essential oil.....	14
Table V. The yield of essential oil of <i>O. basilicum</i> L.....	45
Table VI. The yield of essential oil of <i>P. anisum</i> L.....	45
Table VII. Chemical structure of compounds identified in essential oil of <i>O. basilicum</i> L. calli.....	50
Table VIII. Chemical composition of essential oil of <i>O. basilicum</i> L. calli using GC/MS.....	59
Table IX. Chemical structure of compounds identified in essential oil of <i>P. anisum</i> L. calli.....	61
Table X. Chemical composition of essential oil of <i>P. anisum</i> L. calli using GC/MS....	65
Table XI. Types of carcinogens.....	68
Table XII. EC ₅₀ and EC ₁₀₀ for essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L.....	78
Table XIII. The Percentage of cell viability for normal PBMCs of essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L.	78
Table XIV. IC ₅₀ of essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L. on Caco-2 and HepG-2 and normal PBMCs.....	78
Table XV. Percentage inhibition (%Inhibition) of Caco-2 and HepG-2 by essential oil of <i>O. basilicum</i> L. at different concentrations.....	78
Table XVI. Percentage inhibition (%Inhibition) of Caco-2 and HepG-2 by essential oil of <i>P. anisum</i> L. at different concentrations.....	79
Table XVII. Percentage of absorbance reduction against different concentrations of <i>O. basilicum</i> L. essential oil.....	86
Table XVIII. Percentage of absorbance reduction against different concentrations of <i>P. anisum</i> L. essential oil.....	86
Table XIX. IC ₅₀ for antioxidant activity of essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L.	87
Table XX. The stimulation index of essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L. at different concentrations.....	93

LIST OF FIGURES

	Page
Figure 1. <i>Ocimum basilicum</i> L.	3
Figure 2. <i>Pimpinella anisum</i> L.	4
Figure 3. Formation of <i>O. basilicum</i> L. callus in a hormonal combination of 2,4-D1 and BA 1 static culture.....	35
Figure 4. Formation of <i>O. basilicum</i> L. callus in a hormonal combination of 2,4-D1 and KN1 static culture	36
Figure 5. <i>P. anisum</i> L. seedlings on MS basal medium.....	37
Figure 6. Formation of <i>P. anisum</i> L. callus in a hormonal combination of 2,4-D1 and BA 1 static culture.....	38
Figure 7. Formation of <i>P. anisum</i> L. callus in a hormonal combination of 2,4-D1 and KN1 static culture.....	39
Figure 8. Micrograph of <i>O. basilicum</i> L. calli showing cytodifferentiated hairs.....	40
Figure 9. Micrograph of <i>P. anisum</i> L. calli showing cytodifferentiated vessels (xylogenesis).....	40
Figure 10. <i>P. anisum</i> L. calli showing cytodifferentiation and regenerated leafy structure (organogenesis).....	41
Figure 11. The yield of essential oil of <i>O. basilicum</i> L.....	46
Figure 12. The yield of essential oil of <i>P. anisum</i> L.....	46
Figure 13. GC/MS chromatogram of the essential oil of <i>O. basilicum</i> L.	49
Figure 14. Mass spectral analysis and fragmentation pattern of α -pinene.....	52
Figure 15. Mass spectral analysis and fragmentation pattern of β - phellandrene.....	52
Figure 16. Mass spectral analysis and fragmentation pattern of β -pinene.....	53
Figure 17. Mass spectral analysis and fragmentation pattern of d-limonene.....	53
Figure 18. Mass spectral analysis and fragmentation pattern of 1, 8- cineol.....	54
Figure 19. Mass spectral analysis and fragmentation pattern of <i>cis</i> -linalool oxide..	54
Figure 20. Mass spectral analysis and fragmentation pattern of <i>trans</i> -linalool oxide.....	55
Figure 21. Mass spectral analysis and fragmentation pattern of linalool.....	55
Figure 22. Mass spectral analysis and fragmentation pattern of camphor.....	56
Figure 23. Mass spectral analysis and fragmentation pattern of estragole.....	56
Figure 24. Mass spectral analysis and fragmentation pattern of methyl eugenole...	57
Figure 25. Mass spectral analysis and fragmentation pattern of 10-methylcosane...	57
Figure 26. Mass spectral analysis and fragmentation pattern of α -caryophyllene...	58
Figure 27. GC/MS chromatogram of the essential oil of <i>P. anisum</i> L.	60
Figure 28. Mass spectral analysis and fragmentation pattern of <i>p</i> -anisaldehyde.....	62
Figure 29. Mass spectral analysis and fragmentation pattern of <i>trans</i> -anethole.....	62
Figure 30. Mass spectral analysis and fragmentation pattern of <i>cis</i> -anethole.....	63
Figure 31. Mass spectral analysis and fragmentation pattern of <i>p</i> -anisaldehyde dimethyl acetal.....	63
Figure 32. Mass spectral analysis and fragmentation pattern of <i>p</i> -anisyl acetone...	64
Figure 33. Mass spectral analysis and fragmentation pattern of <i>p</i> -anisic acid.....	64
Figure 34. EC ₅₀ and EC ₁₀₀ cell viability for essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L. .	79
Figure 35. The % cell viability for PBMCs tested with essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L. at different concentrations	80
Figure 36. IC ₅₀ of essential oils of <i>O. basilicum</i> L. and <i>P. anisum</i> L. on Caco-2 and HepG-2 ..	80
Figure 37. Cytotoxic activity of essential oil of <i>O. basilicum</i> L. on Caco-2 and HepG-2	81

Figure 38. Cytotoxic activity of essential oil of <i>P. anisum</i> L. on Caco-2 and HepG-2.....	81
Figure 39. Antioxidant activity of essential oil of <i>O. basilicum</i> L. using DPPH assay.....	86
Figure 40. Antioxidant activity of essential oil of <i>P. anisum</i> L. using DPPH assay.....	87
Figure 41. IC ₅₀ of antioxidant activity for essential oils of <i>O. basilicum</i> Land <i>P. anisum</i> ...	88
Figure 42. The Stimulation index of essential oils of <i>O. basilicum</i> L.and <i>P. anisum</i> L.at different concentrations.....	93

oboiikanda.com

ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome	IBA	Indole-3- butyric acid
BA	Benzyl adenine	iNOS	Inducible nitric oxide synthase
BAP	Benzyl aminopurine	2-iP	Isopentyl adenine
BHA	Butylated hydroxyl anisole	LSM	Lymphocyte separation media
		MIC	Minimum inhibitory concentration
BHT	Butylated hydroxyl toluene	MCF-7	Breast cancer cell line
cGMP	Cyclic guanine monophosphate	MES	Maximal electroshock
Caco-2	Colorectal cancerous cells	MS	Mushirage and Skooge
CRC	Colorectal cancer	MCC	Mitomycin C
CWE	Cell wall elicitors	4-	4- Nitroquinoline –N- oxide
		NQO	
2, 4-D	2,4- Dichlorophenoxy acetic acid	2-NP	2- Nitropropane
DMSO	Dimethyl sulfoxide	NAA	Naphthyl acetic acid
DPPH	1,1-Diphenyl-2-picrylhydrazyl	NDR	Nile Delta rRegion
DTH	Delayed type hypersensetivity	NIH-3T3	Mouse embryonic fibroblasts
EPB	Epoxypseudo isoeugenol-2-methyl butyric acid	NCI-H460	Human lung cancer cell line
EC₅₀	Effective concentration 50	PBMC	Peripheral blood mononucleular cells
EC₁₀₀	Effective concentration100	PE-S	Petroleum ether soluble
FRAP	Ferric reducing antioxidant power	PE-I	Petroleum ether insoluble
FBS	Fetal bovine serum	PTZ	Pentylene tetrazole
5-FU	5- fluororacil	PVX	Potato virus X
GABA	Gamma aminobutyric acid	PBS	Phosphate buffered saline
GA	Gibberellic acid	PBL	Peripheral blood leukocytes
		RI	Retention index
GC/MS	Gas chromatography/ Mass spectroscopy	RAPD	Random amplified polymorphic DNA
HIV	Human immunodeficiency virus	RA	Rosmarinic acid
HEPES	N-2-hydroxyethylpiperazine-N'-2-ethansulfonic acid	ROS	Reactive oxygen species
HEP-2	Human laryngeal epithelial carcinoma cell line	SF-268	Human glioma and asrtocytoma cancer cell line
HepG-2	Hepatocellular carcinoma cell line	SOD	Superoxide dismutase
Hela	Cervical cancer cell line	SARS	Severe acute respiratory syndrome
HL-60	Promeylocytic leukemia cell line	TNF	Tumor necrosis factor
HCC	Hepatocellular carcinoma		

HA Haemagglutination antibody
HT-144 Human malignant melanoma cell line

TAG Triacyl glycerol
TDZ Thidiazuran

IAA Indole-3- acetic acid
IC₅₀ Inhibitory concentration 50
IL Interleukin

TMV Tobacco mosaic virus
TRSV Tobacco ring spot virus
UVC Ultraviolet C

obeyikandi.com