J Genet Resour2026; 12(2): 169-179 *Homepage: http://sc.journals.umz.ac.ir/*

RESEARCH ARTICLE *DOI: 10.22080/jgr.2026.31032.1457*

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Supplement 1. GC-MS analysis of 11 *Citrus* species in Diyala city from Iraq

Chemical Components	Area%	Retention time(min)	Molecular formula
C. auarantiifolia* var. *acidica			
Toluene	36.47	7.345	$C_6H_5CH_3$
Benzene -methanol	36.47	7.345	C_9H_{12}
N--Hexadecanoic acid	24.80	56.217	$C_{16}H_{32}O$
Myristic acid	24.80	56.217	CH3(CH2)12COOH
z, e-2,13-Qctadeien-1-ol	2.99	59.691	C18H34O
1,215,16-Diepexyhexadecane	2.99	59.691	C16H30O2
2(3h)-furanone, dihydro-5-tetrad	4.36	4.36	C18H34O2
9-Octadecenoic acid, methyl ester	2.66	60.314	C19H36O
Oleic Acid	10.09	61.686	C18H34O2
Oleic Acid	12.84	61.840	C18H34O2
Octadecanoic acid	5.79	62.378	CH3(CH2)16CO2H
C. aurantium			
Toluene	27.12	7.368	C6H5CH3
Benzene -methanol	27.12	7.368	C9H12
3-Methylpyrrolidin-3-ol	0.93	9.500	C5H11NO
Dihydrocoumarin, 4,4,5,7,8-penta.	5.06	38.065	C14H18O2
Neophytadiene	3.40	51.759	C20H38
Pentatriacontane, 1-bromo-	4.40	51.976	C35H71Br
Nonadecane	1.70	53.228	C19H40
Tetracosane	13.70	54.131	C24H50
Hexadecanoic acid, methyl ester	0.99	54.759	C17H34O2
Dibutyl phthalate	0.75	55.834	C16H22O4
n-Hexadecanoic acid	3.94	56.194	C16H32O
Docosanoic acid, docosyl ester	2.65	59.697	C44H88O
Fumaric acid, hexadecyl 2-methyl...	2.09	59.897	C26H48O4
1-Bromo-11-iodoundecane	2.09	59.897	C11H22BrI
cis-Vaccenic acid	4.52	60.320	C18H34O2
9-Octadecenoic acid (Z)-	3.73	60.549	C19H36O
2,2-Dimethylpropanoic acid, 2,6-.	1.79	61.120	C16H26O2
Fumaric acid, hexadecyl 2-methyl...	2.77	62.172	C25H44O4
Heneicosane	18.17	62.555	C21H44
14-. BETA. -H-PREGNA	2.28	63.069	C21H36
C. deliciosa			
Toluene	28.55	7.362	C6H5CH3
Benzene -methanol	28.55	7.362	C9H12
ICOSANE	37.68	52.022	C20H42
Tetracosane	6.48	54.130	C24H50
Hexadecanoic acid, methyl ester	1.22	54.765	C17H34O2
Thiosulfuric acid (H2S2O3), S-(2	0.98	56.245	C6H13NO5S3
n-Hexadecanoic acid	0.98	56.245	C16H32O
9-Octadecenoic acid (Z)-	4.42	60.326	C18H34O2
methyl dihydromalvalate	3.43	60.526	C19H36O
9-Octadecenoic acid, methyl ester,	3.43	60.526	C19H36O
Pentacosane	10.05	62.555	C25H52
Octadecane	37.68	52.022	C18H38
Tetracosane	6.48	54.130	C24H50
Heneicosane	10.05	62.555	C26H54
Nonacosane	2.23	63.046	C29H60
cyclohexane,1-(1,5-dimethylhexy	3.23	62.155	C15H30
1-Nonadecene	0.37	60.897	C19H38
Heptadecanoic acid, 16-methyl-	1.36	61.120	C19H38O2
Pentacosanoic acid, methyl ester	1.36	61.120	C26H52O
Hexacosane	3.23	62.155	C26H54
Heneicosane	10.05	62.555	C21H44
Nonacosane	2.23	63.046	C29H60
C. grandis			
Toluene	99.55	7.396	C6H5CH3
Benzene –methanol	99.55	7.396	C9H12
Neophytadiene	0.45	51.770	C20H38
3.2-Hexadecen-1-ol,3,7,11,15. tetra	0.45	51.770	C20H40O
C. Latifolia			
Toluene	37.53	7.368	C6H5CH3
Benzene -methanol	37.53	7.368	C9H12
2-Pentanone, 4-hydroxy-4-methyl	0.91	9.499	C6H12O2
2,5-Cyclohexadien-1-one, 2,6-bis.	1.69	38.076	C16H24O
Neophytadiene	3.66	51.758	C20H38

Continue of supplement 1. GC-MS analysis of 11 *Citrus* species in Diyala city from Iraq

Chemical Components	Area%	Retention time(min)	Molecular formula
Icosane	3.66	51.758	C20H42
Hexacosane	5.83	51.981	C26H54
Pentatriacontane	5.83	51.981	C35H72
Tridecanedial	1.31	53.227	C13H24O2
Neophytadiene	1.31	53.227	C20H
Tetracosane	14.25	54.130	C24H50
Eicosane	14.25	54.130	C20H42
Hexadecanoic acid, methyl ester	1.02	54.759	C17H34O2
1,2-Benzenedicarboxylic acid, Di	1.12	55.834	C8H6O4
Phthalic acid, butyl tetradecyl	1.12	55.834	C26H42O4
n-Hexadecanoic acid	2.58	56.194	C16H32O
Hexadecanoic acid	2.58	56.194	C16H32O2
Cyclododecane	2.60	60.143	C12H24
17-Pentatriacontene	2.60	60.143	C35H70
Heneicosane	2.20	60.320	C12H24
Diterpene	2.99	60.623	C20H32
6-Bromo-4,5-dichloro-2-benzoxazo.	2.99	60.623	C6H4BrCl2N
Octadecanoic acid, methyl ester	0.87	61.114	C19H34O
Heptadecanoic acid, 16-methyl-	0.87	61.114	C19H38O2
Fumaric acid, heptadecyl 2-methy	2.28	62.160	C25H44O4
5-phenyl4,5-dihydro-1H-[1,2,4]t	2.28	62.160	C19H19N3S
Docosane	17.86	62.555	C22H46
Pentacosane	17.86	62.555	C25H52
7-Methoxy-1-methyl-2-pentyl-3H,4	1.32	63.132	C17H14O3
2-Piperidinone, N-[4-bromo-n-but..	1.32	63.132	C9H16BrNO
C. Limetta			
Toluene	95.88	7.476	C6H5CH3
Benzene – methanol	95.88	7.476	C6H5CH3
Cyclohexane,1,3-dimethyl-, trans	0.52	8.379	C8H16
4(3)-Methyl-2-furfuryl alcohol	0.52	8.379	C6H8O2
Cyclohexane, 1,4-dimethyl-, trans-	0.56	8.551	C8H16
Toluene	0.46	8.722	C6H5CH3
Benzene, methyl-	0.46	8.722	C9H12
Toluene	0.21	9.025	C6H5CH3
Benzene, methyl-	0.21	9.025	C6H5CH3
Bicycle [2.2.1] heptane, 2-methyl	0.16	9.208	C8H14
Cyclohexane, 1,2-dimethyl-, cis	0.25	9.322	C8H16
Cyclohexane, ethyl-	0.20	9.437	C8H16
Cyclohexane, 1,1,3-trimethyl-	0.11	9.562	C9H18
Benzene, ethyl-	0.10	10.323	C8H10
Ethylbenzene	0.10	10.323	C6H5CH2CH3
O-xylene	0.19	10.705	C6H4(CH3)2
P-xylene	0.19	10.705	C6H4(CH3)2
Docosane	0.09	29.240	CH3(CH2)20CH3
heptadecane, 8-methyl-	0.09	29.240	C18H38
Caryophyllene	0.06	36.104	C15H24
bicyclo[7.2-0]undec-4-ene,4,11	0.06	36.104	C15H24
Docosane	0.13	38.573	C22H46
Heneicosane	0.13	38.573	C21H44
Octacosane,1-iodo	0.15	40.437	C28H571
Triacontane,1-iodo	0.15	40.437	C30H611
Heptacosane	0.19	46.843	C27H56
Eicosane,1-iode	0.14	54.233	C20H411
Docosane,1-iodo	0.14	54.233	$C_{20}H_{42}$
Pentacosane	0.10	55.645	C25H52
Heptacosane	0.10	55.645	C27H56
Eicosane	0.11	56.222	C20H42
Tricosane	0.11	56.222	C23H48
Oleic Acid	0.11	60.332	C18H34O2
methyl dihydromalvalate	0.11	60.332	C19H36O
Nonadecane	0.06	60.909	C19H40
Hentriacontane	0 .06	60.909	C31H64
Eicosane	0.08	62.178	C20H42

Continue of supplement 1. GC-MS analysis of 11 *Citrus* species in Diyala city from Iraq

Chemical Components	Area%	Retention time(min)	Molecular formula
C. lemon			
Toluene	88.69	7.454	C6H5CH3
Benzene, methyl-	88.69	7.454	C9H12
Cyclohexane, 1,3-dimethyl-, trans-	0.14	8.499	C8H16
Linalyl acetate	0.35	28.092	C12H20O2
1,6-Octadien-3-ol, 3,7-dimethyl-	0.35	28.092	C11H18O
Caryophyllene	0.17	36.104	C15H24
Docosane, 1-iodo-	0.21	38.573	C10H21I
Heptacosane	0.21	38.573	C27H56
Eicosane, 1-iodo-	0.21	38.573	C20H41I
2,4-Di-tert-butylphenol	0.33	39.717	C14H22O
Phenol, 2,4-bis(1,1-dimethylethyl)	0.33	39.717	C17H30OSi
Tridecane, 1-iodo-	0.24	40.437	C13H27I
Docosane	0.24	40.437	C22H46
1,2-Benzenedicarboxylic acid, Di	1.92	42.763	C30H50O
Diethyl Phthalate	1.92	42.763	C12H14O4
Cyclopentane acetic acid, 3-oxo-2...	3.67	45.123	C13H20O3
1-(4-Isopropylphenyl)-2-Methylpr	0.45	45.735	C15H22O2
METHYL (3-OXO-2-Pentylcyclopenty	0.70	46.198	C13H22O3
Hexadecane	0.26	46.838	C16H34
Octadecane, 1-iodo	0.26	46.838	C18H37I
15-Hydroxypentadecanoic acid	0.32	57.891	C15H30O
E-9-Tetradecenoic acid	0.32	57.891	C 14 H 26 O
Octacosane	0.17	60.909	C28H58
Eicosane	0.17	60.909	C20H42
TRICOSANE	0.24	62.178	C23H48
C. sinensis			
Toluene	40.02	7.368	C6H5CH3
Benzene -methanol	40.02	7.368	C9H12
2-Pentanone, 4-hydroxy-4-methyl-	1.55	9.505	C6H12O2
Hydrazine, 1,1-bis(1-methylethyl)-	1.55	9.505	C6H16N2
2,5-Cyclohexadien-1-one, 2,6-bis.	3.61	38.065	C16H24O
9H-Cycloisolongifolene, 8-oxo-	3.61	38.065	C15H22O
1-Methoxy-3--(2- hydroxyethyl) nonane	2.44	51.759	C12H26O2
ICOSANE	2.63	51.976	C20H42
Dotriacontyl isopropyl ether	2.63	51.976	C35H72O
Tetracosane	8.44	54.130	C24H50
Pentadecanoic acid, 14-methyl-,	2.28	54.759	C17H34O
n-Hexadecanoic acid	4.58	56.194	C16H32O
Hahnfett (stopcock grease)	2.83	59.697	
Cyclopentadecanone, 2-hydroxy-	1.99	59.909	C15H28O
Nonacosane	6.36	60.320	C19H40
Allylcychohexyl carbonate	5.79	60.560	C10H16O3
9-Octadecenoic acid (Z)-	1.06	61.109	C18h34O2
Methyl 2-methoxyoctadecanoate	1.94	61.920	C20H40O3
Methyl (S2, S3, S6, S7, Ss)-2-Bromo	0.71	62.160	C17H17BrO5S
Eicosane	9.74	62.549	C20H42
17-Pentatriacontene	4.03	63.029	C35H70
C. sinensis* var *Moro			
Toluene	50.27	7.368	C6H5CH3
Benzene, methyl-	50.27	7.368	C9H12
Pentanone, 4-hydroxy-4-methyl-	0.98	9.505	C6H12O2
2-Heptanone, 3-hydroxy-3-methyl	0.98	9.505	C5H10O2
2,5-Cyclohexadien-1-one, 2,6-bis	2.67	38.082	C16H24O
Dihydrocoumarin, 4,4,5,7,8-penta.	2.67	38.082	C14H18O2
4a,8-Epoxy-4aH-benzocycloheptene.	2.67	38.082	C15H22O
Heptacosane	1.49	46.889	C17H36
Cyclopropaneoctanal, 2-octyl-	2.78	51.759	C19H36O
14-. BETA. -H-PREGNA	2.78	51.759	C21H36
Hexacosane	4.92	51.970	C26H54
Heptadecane	4.92	51.970	C17H36
Tetracosane	4.40	54.130	C24H50
ICOSANE	4.40	54.130	C20H42
Tetra decanoic acid, 12-methyl-,	1.54	54.759	C16H32O2
Tridecanoic acid, methyl ester	1.54	54.759	C14H28O
Hexadecenoic acid	4.03	56.205	C16H32O2
l-(+)-Ascorbic acid 2,6-dihexade	4.03	56.205	C38H68O8

Continue of supplement 1. GC-MS analysis of 11 *Citrus* species in Diyala city from Iraq

Chemical Components	Area%	Retention time(min)	Molecular formula
Longiborneo	1.94	59.714	C15H26O
1-Bromoeicosane	1.94	59.714	CH3(CH2)19Br
1,3-Dioxolane, 4-ethyl-5-octyl-2	2.45	59.943	C15H24F6O2
5-Phenyl-4,5-dihydro-1H-[1,2,4]t	2.45	59.943	C8H9N3
9-Octadecenoic acid (Z)-	3.89	60.320	C18H34O2
Octacosane	3.89	60.320	C28H58
14-. BETA. -H-PREGNA	2.50	60.532	C21H36
9-Octadecenoic acid, (E)-	2.50	60.532	C18H34O
Cyclohexane, 1-(1,5-dimethylhexy	0.72	61.115	C15H
9-Eicosene, (E)-	0.72	61.115	C20H40
9-Octadecenoic acid, (E)	5.27	61.995	C18H34O
9-Eicosene, (E)-	5.27	61.995	C20H40
Octacaine	3.67	62.560	C28H58
Eicosane	3.67	62.560	C20H42
2,5-furandione, -3-(dodecanoyl)dih	6.48	63.018	C19H32O4
Pentadec-7-ene, 7-bromomethyl-	6.48	63.018	C16H31Br
C. paradisi			
Toluene	36.47	7.345	C6H5CH3
Benzene-methanol	36.47	7.345	C9H12
n-Hexadecenoic acid	24.80	56.217	C16H32O
Myristic acid	24.80	56.217	C14H28O2
z, e-2,13-Qctadeien-1-ol	2.99	59.691	C18H34O
1,2-15,16-Diepexyhexadecane	2.99	59.691	C16H30O2
9-Octadecenoic acid, methyl ester	2.66	60.314	C19H36O
11-Octadecenoic acid, methyl ester	2.66	60.314	C19H36O
Oleic Acid	4.36	60.549	C18H34O2
2(3h)-furanone, dihydro-5-tetrad	4.36	60.549	C18H34O2
9-Octadecenoic acid	10.09	61.686	C18H34O
cis-Vaccenic acid	10.09	61.686	C18H34O2
Oleic Acid	12.84	61.840	C18H34O2
9-Octadecenoic acid	12.84	61.840	C18H34O2
Octadecanoic acid	5.79	62.378	C18H36O
1-Heptadecanecarboxylic acid	5.79	62.378	C31H18O2
C. rishni			
Toluene	55.40	7.368	C6H5CH3
Benzene-methanol	55.40	7.368	C9H12
Heptane	0.38	7.705	C7H16
3-Hexanone	0.38	7.705	C6H122O
1-Propene, 1-propoxy-, (Z)-	0.36	7.825	C6H12O
2-Hexanone	0.36	7.825	C6H12O
2-Pentanone, 4-hydroxy-4-methyl-	0.75	9.499	C6H12O2
2-Pentanone, 3-hydroxy-	0.75	9.499	C5H10O2
1,6-Octadien-3-ol, 3,7-dimethyl-	1.60	21.044	C11H18O
L-LINALOOL	1.60	21.044	C10H18O
phenol,5-methyl-2-(1-methylethyl)	6.05	30.578	C12H16O2
2,5-Cyclohexadien-1-one, 2,6-bis	0.72	38.065	C16H24O
Hexadecane	0.46	43.100	C16H34
Nonadecane	2.85	51.758	C29H60
Hexaoxane	10.28	51.999	C26H54
Tetracosane	3.65	54.130	C24H50
Hexadecenoic acid, methyl ester	1.57	54.753	C17H34O2
Hexadecenoic acid	1.27	56.182	C16H32O
9-Octadecenoic acid, methyl ester...	3.04	60.314	C19H36O
methyl dihydromalvalate	2.14	60.514	C19H36O
Heptadecanoic acid, 16-methyl-	0.66	61.109	C19H38O2
ISOCHIAPIN B	2.21	62.138	C19H26O6
Heneicosane	5.52	62.555	C21H44
5-Phenyl-4,5-dihydro-1H-[1,2,4]t...	1.09	63.041	C19H19N3S