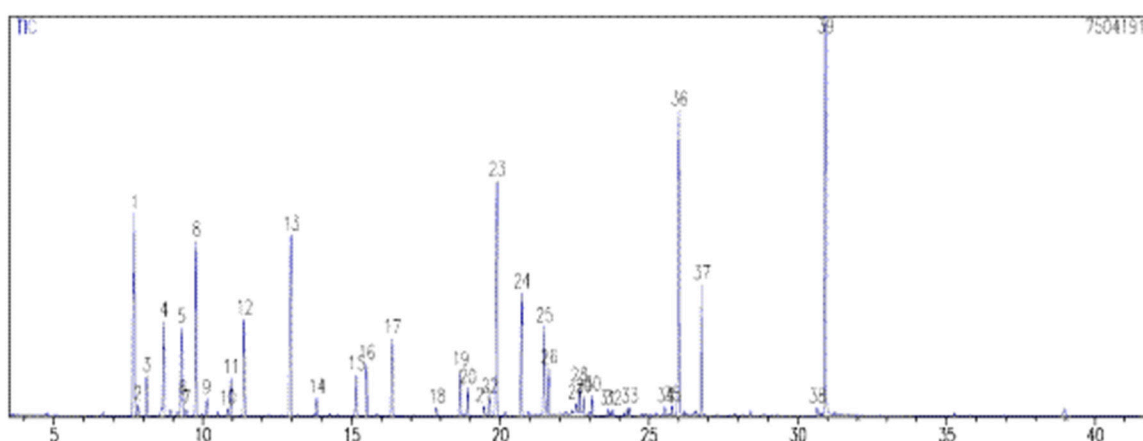


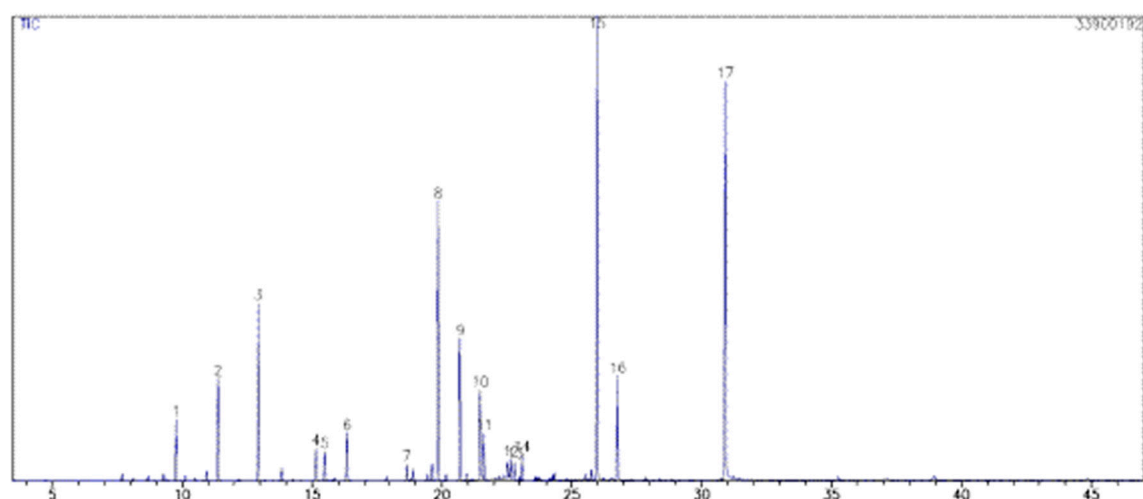
# Supplementary Materials: Essential Oil Variation of Twenty Two Genotypes of *Citrus* in Brazil—Chemometric Approach and Repellency Against *Diaphorina citri* Kuwayama

Moacir dos Santos Andrade, Leandro do Prado Ribeiro, Paulo Cesar Borgoni, Maria Fátima das Graças Fernandes da Silva, Moacir Rossi Forim, João Batista Fernandes, Paulo Cezar Vieira, José Djair Vendramin and Marcos Antônio Machado

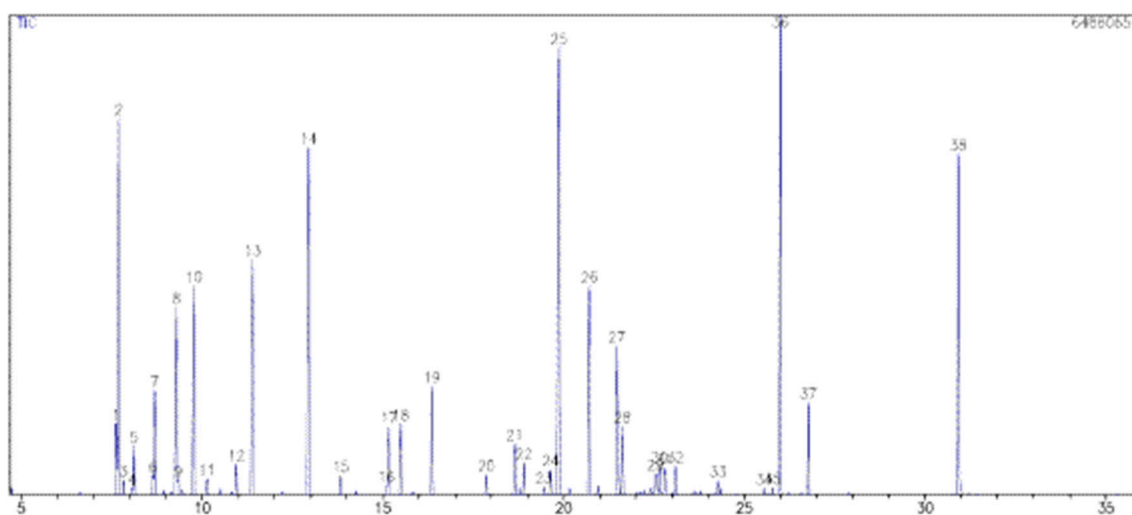
## 1. Figures



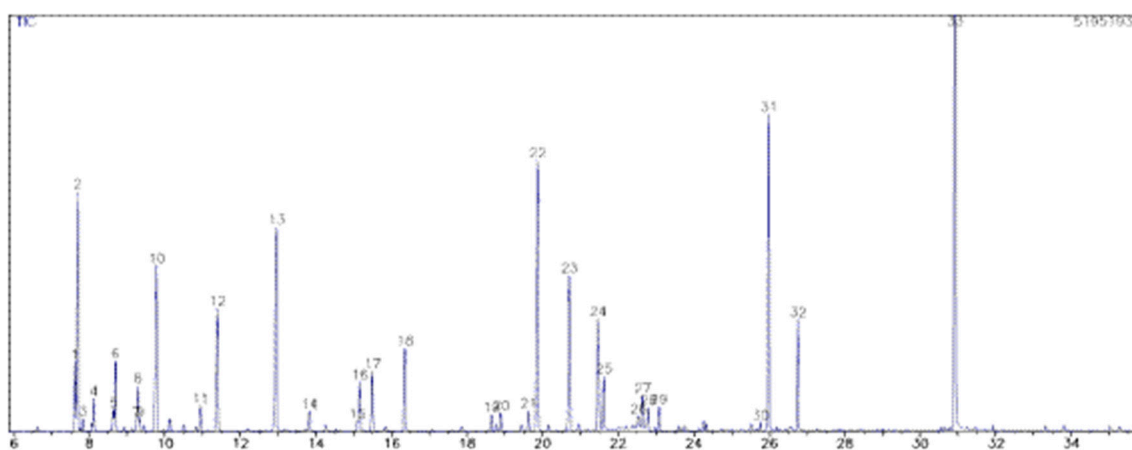
**Figure S1.** GC (TIC) chromatogram of volatile oils from *Citrus sinensis* cv. 'Pera' (C-1), indicating the major compounds.



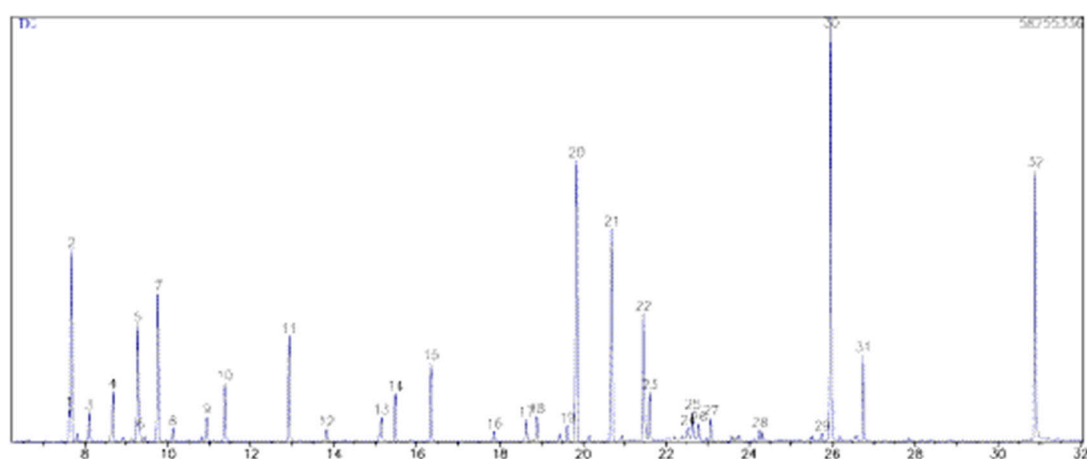
**Figure S2.** GC (TIC) chromatogram of volatile oils from *Citrus sinensis* cv. 'Natal' (C-2), indicating the major compounds.



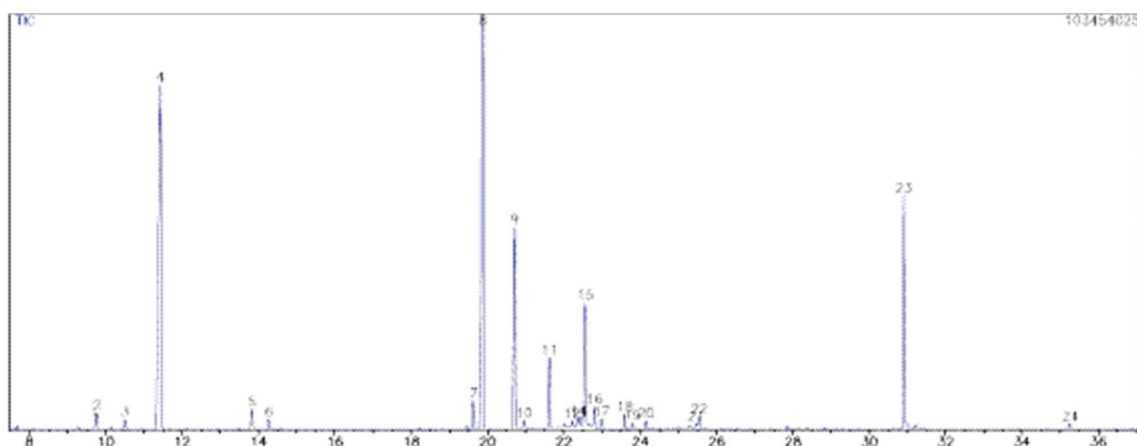
**Figure S3.** GC (TIC) chromatogram of volatile oils from *Citrus sinensis* cv. 'Valencia' (C-3), indicating the major compounds.



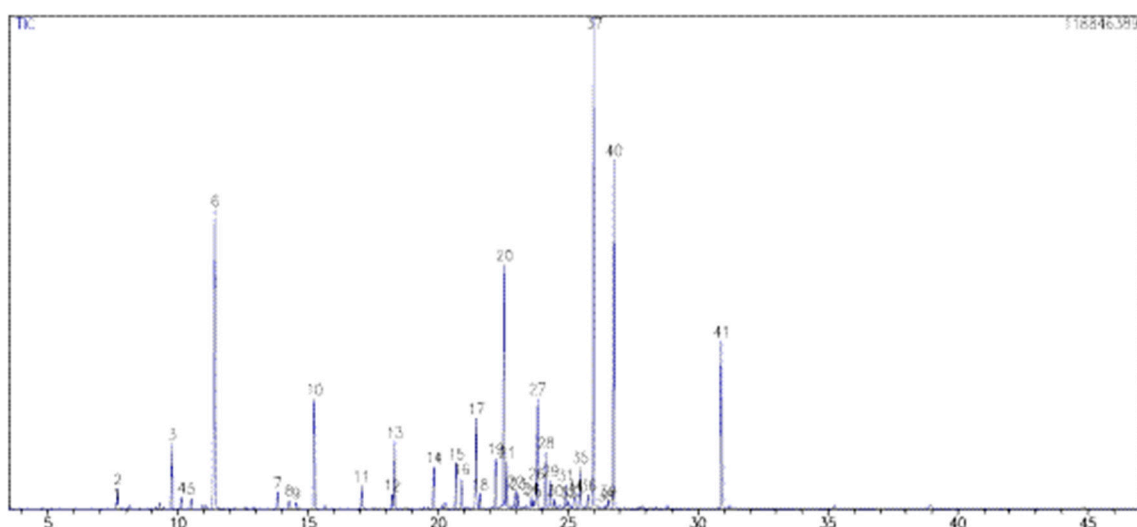
**Figure S4.** GC (TIC) chromatogram of volatile oils from *Citrus sinensis* cv. 'Washington Navel' ('Bahia') (C-4), indicating the major compounds.



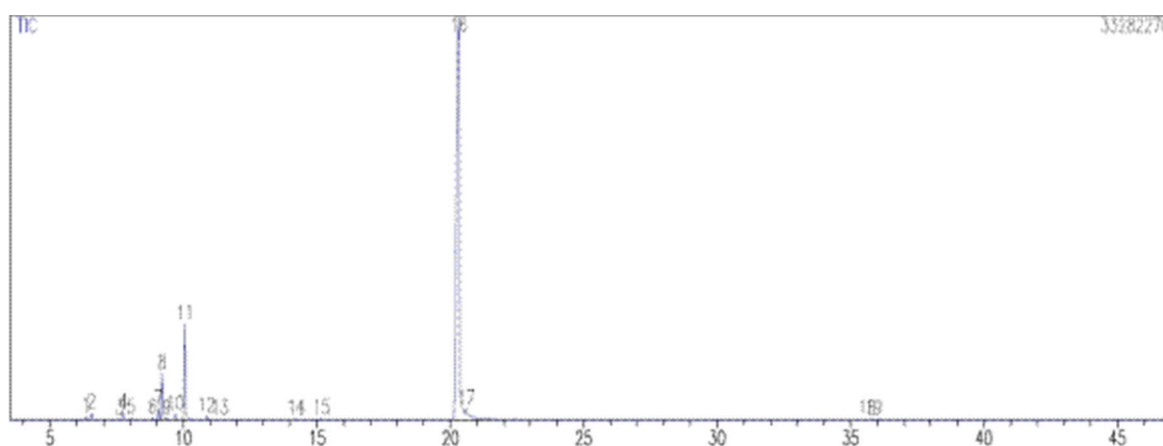
**Figure S5.** GC (TIC) chromatogram of volatile oils from *Citrus sinensis* cv. 'Hamlin' (C-5), indicating the major compounds.



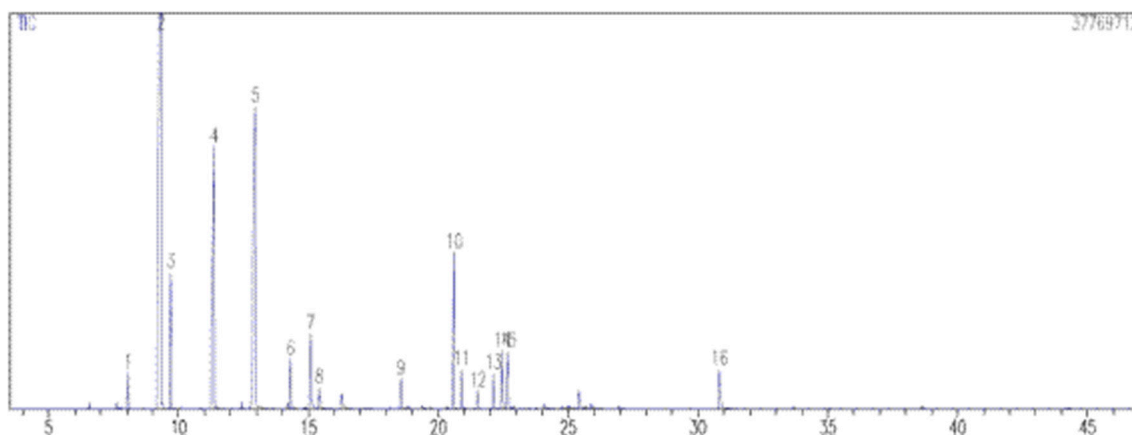
**Figure S6.** GC (TIC) chromatogram of volatile oils from *C. reticulata* Blanco (tangerine or mandarin) cv. 'Cravo' (C-6), indicating the major compounds.



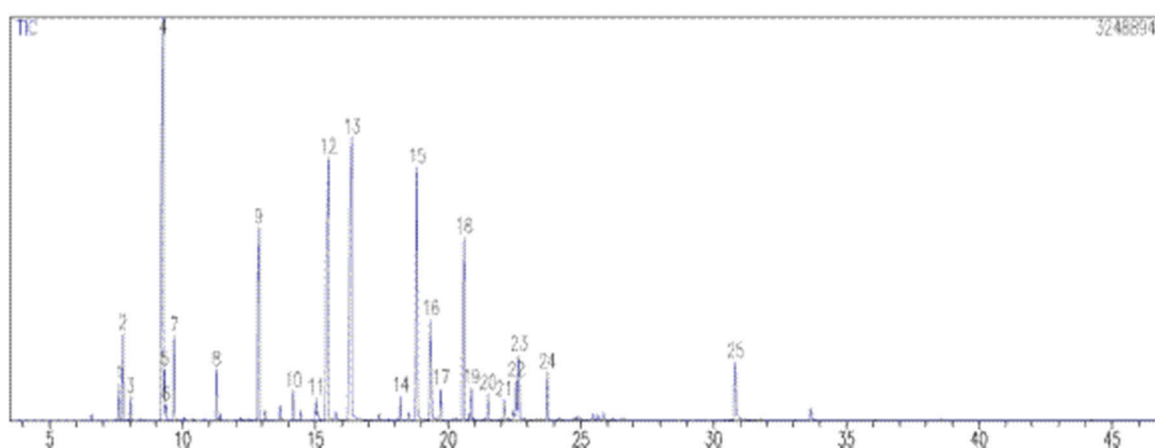
**Figure S7.** GC (TIC) chromatogram of volatile oils from *C. reticulata* Blanco (tangerine or mandarin) cv. 'Ponkan' (C-7), indicating the major compounds.



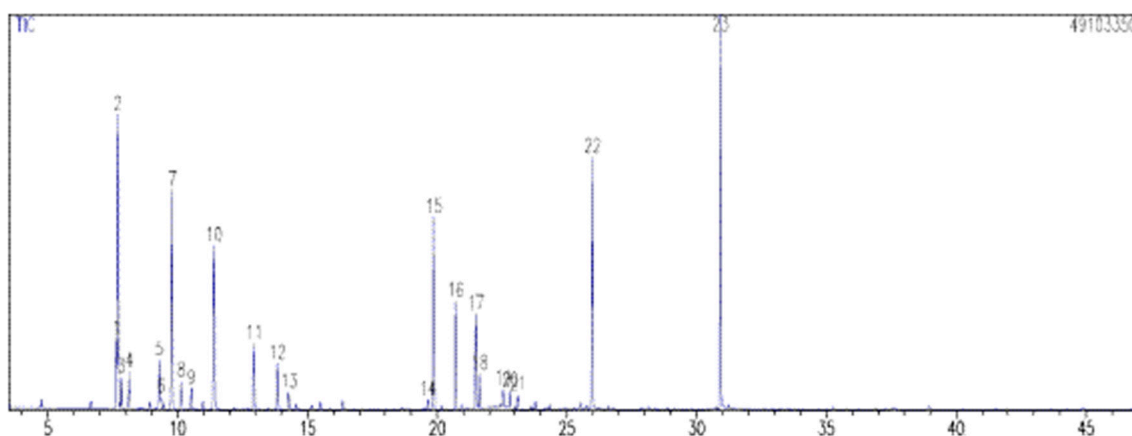
**Figure S8.** GC (TIC) chromatogram of volatile oils from *C. deliciosa* Tenore (mandarin) cv. 'Mexericado-rio' (C-8), indicating the major compounds.



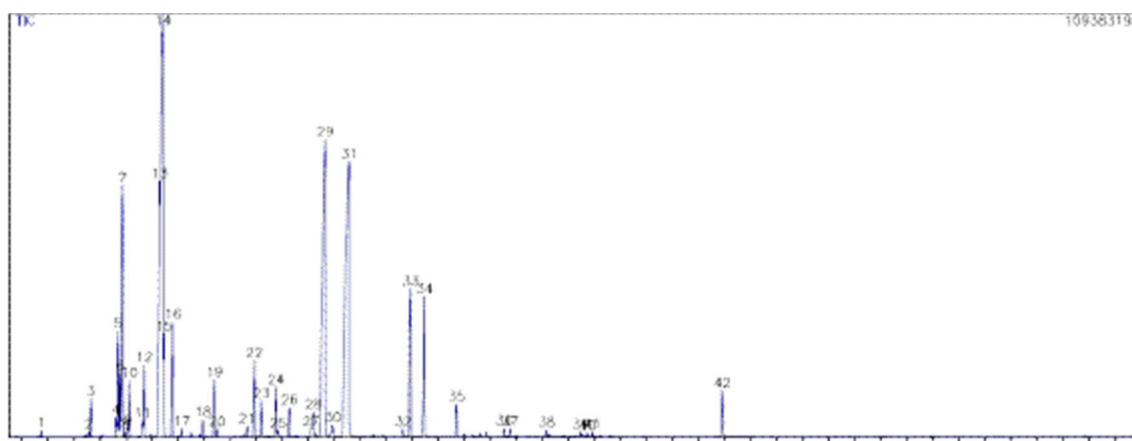
**Figure S9.** GC (TIC) chromatogram of volatile oils from *C. limettioides* Tanaka (sweet lime) cv 'Palestine' (C-9), indicating the major compounds.



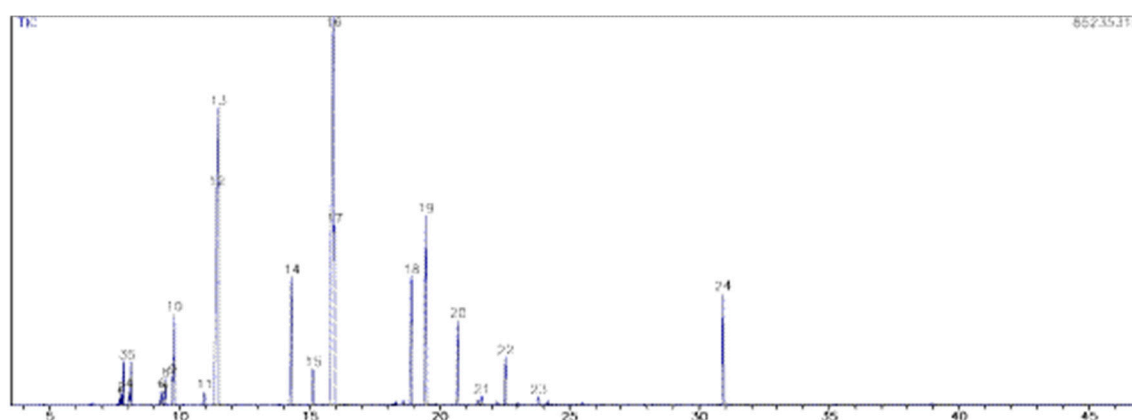
**Figure S10.** GC (TIC) chromatogram of volatile oils from *C. latifolia* Tanaka (lime) cv. 'Tahiti' (C-10), indicating the major compounds.



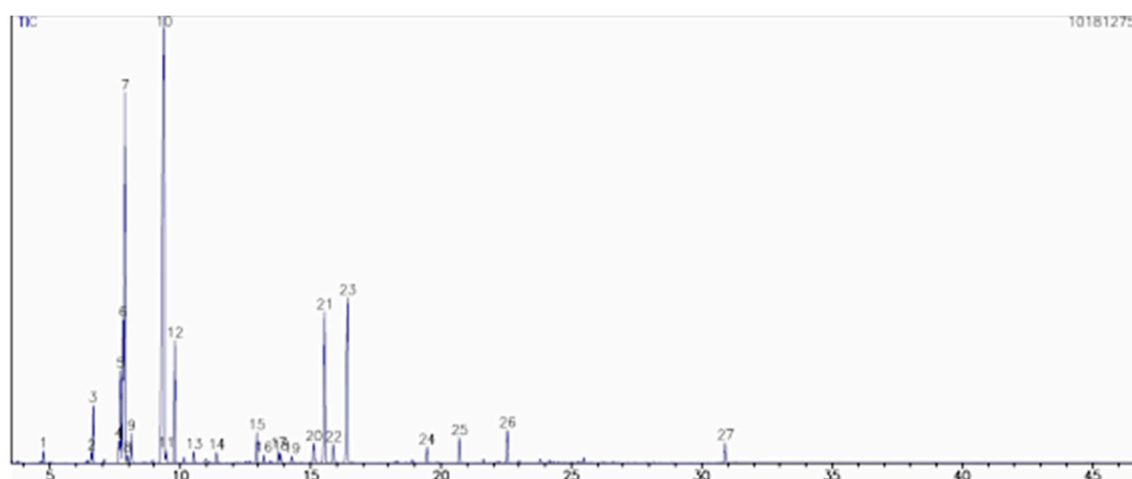
**Figure S11.** GC (TIC) chromatogram of volatile oils from *C. paradisi* Mcf. (grapefruit) cv. 'Marsh Seedless' (C-11), indicating the major compounds.



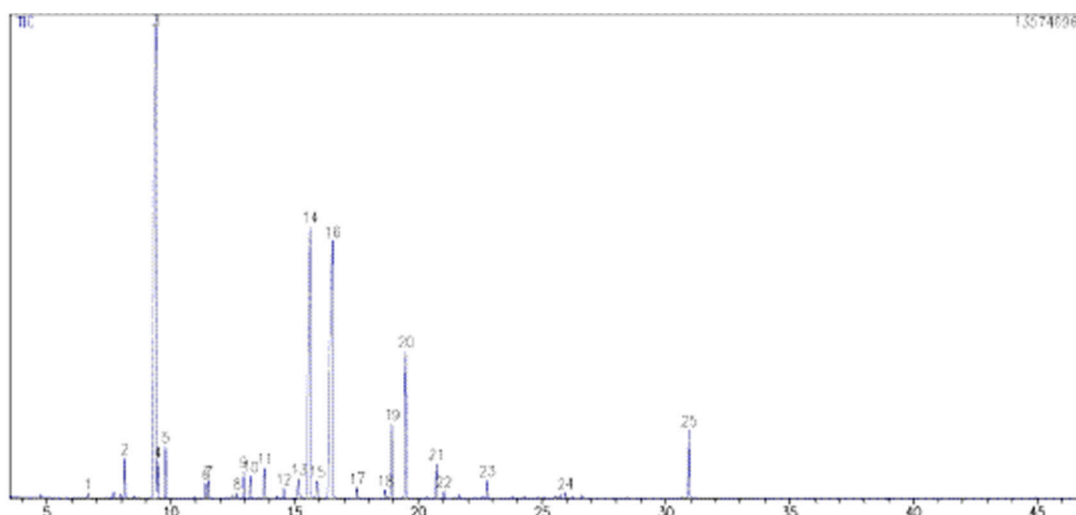
**Figure S12.** GC (TIC) chromatogram of volatile oils from *C. limon* (L.) Burm. F. (Sicilian lemon) (C-12), indicating the major compounds.



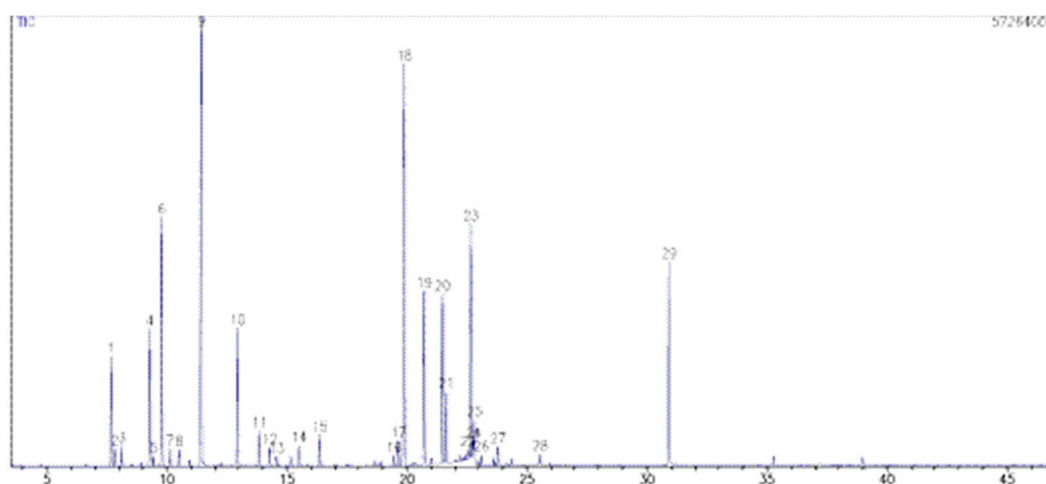
**Figure S13.** GC (TIC) chromatogram of volatile oils from *C. aurantium* L. (sour orange) (C-13), indicating the major compounds.



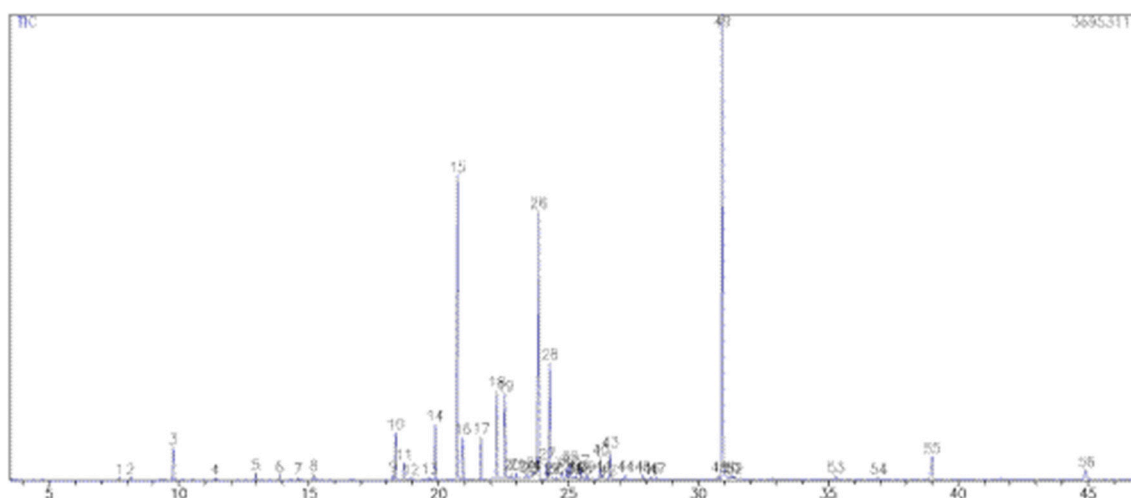
**Figure S14.** GC (TIC) chromatogram of volatile oils from *C. grandis* Osbeck (sweet pummel) (C-14), indicating the major compounds.



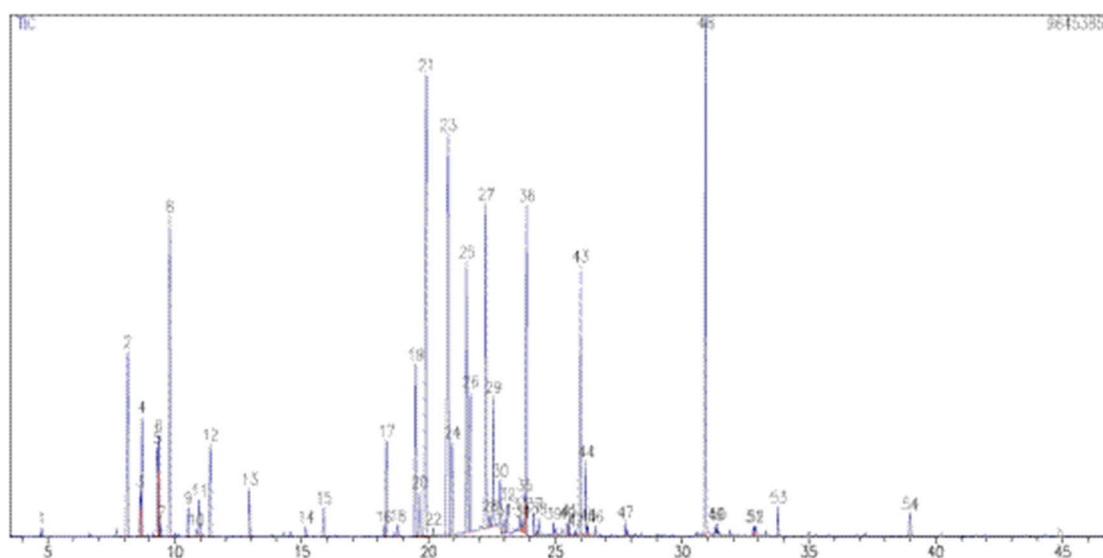
**Figure S15.** GC (TIC) chromatogram of volatile oils from *C. medica* L. (citron) (C-15), indicating the major compounds.



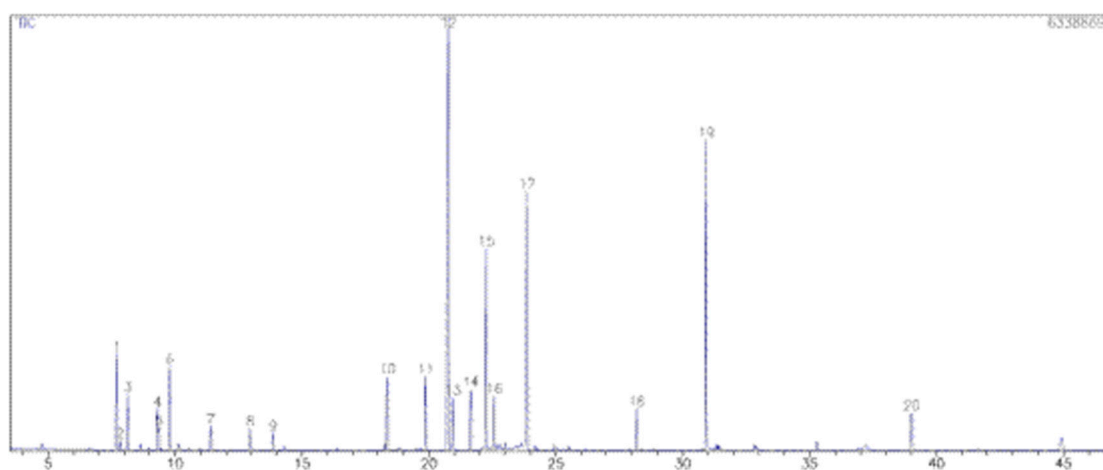
**Figure S16.** GC (TIC) chromatogram of volatile oils from *C. reticulata* L. x *C. sinensis* L. (tangor) 'Murcott' (C-16), indicating the major compounds.



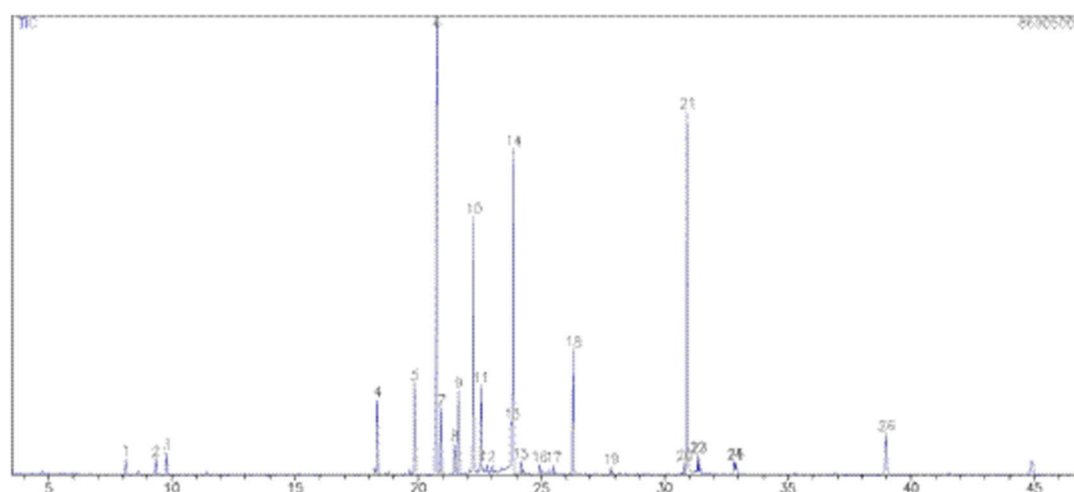
**Figure S17.** GC (TIC) chromatogram of volatile oils from *C. paradisi* x *P. trifoliata* (citrumelo) cv. 'Swingle' (C-17), indicating the major compounds.



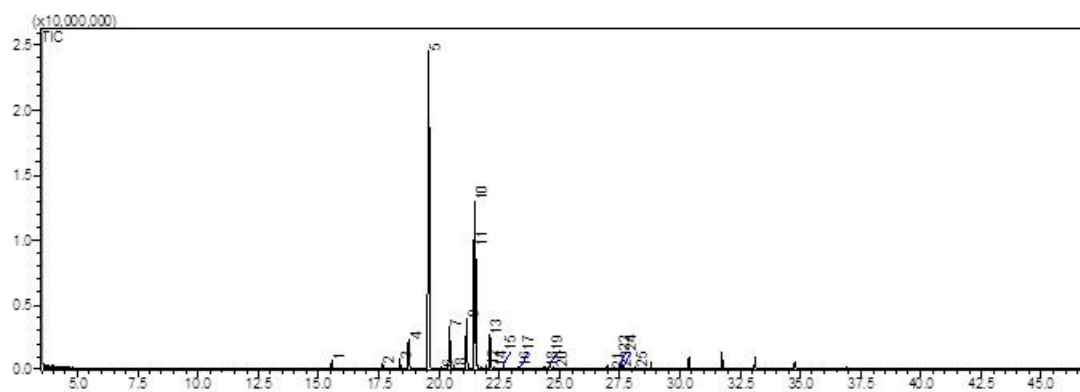
**Figure S18.** GC (TIC) chromatogram of volatile oils from *P. trifoliata* x *C. sinensis* (citrange) cv. 'Troyer' (C-18), indicating the major compounds.



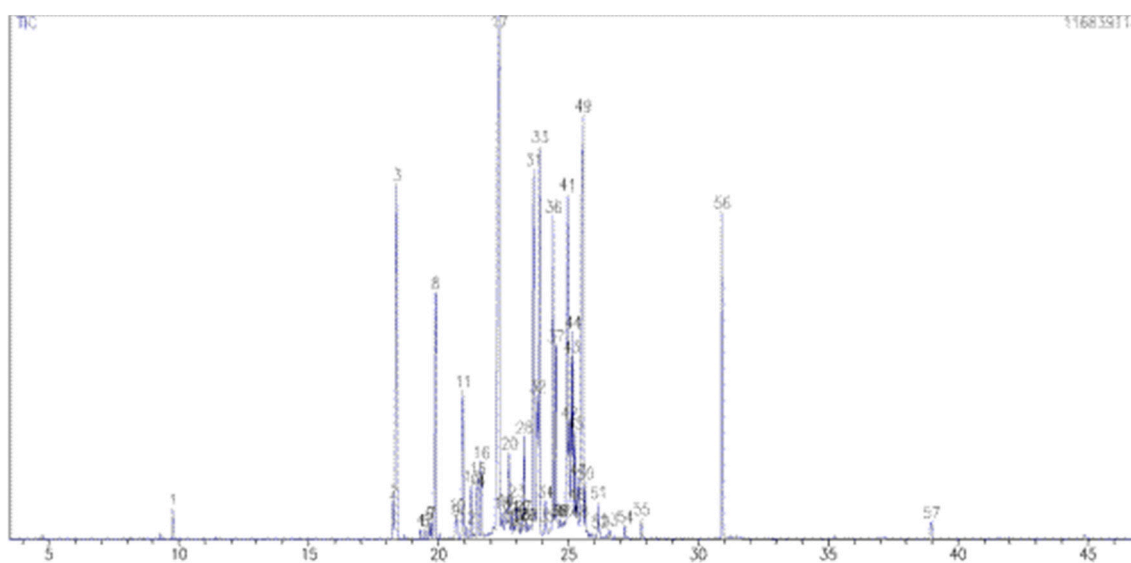
**Figure S19.** GC (TIC) chromatogram of volatile oils from *C. sunki* hort. ex Tanaka x *P. trifoliata* L. Raf. (citrandarin) 'English' (C-19), indicating the major compounds.



**Figure S20.** GC (TIC) chromatogram of volatile oils from *P. trifoliata* L. Raf. (poncirus) cv 'Rubidoux' (C-20), indicating the major compounds.



**Figure S21.** GC (TIC) chromatogram of volatile oils from *M. paniculata* (C-21), indicating the major compounds.



**Figure S22.** GC (TIC) chromatogram of volatile oils from *F. margarita* Lour. (kumquat) (C-22), indicating the major compounds.





1288	1290	Thymol (C10)	-	-	0.86	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1316	-	NI	-	-	-	-	0.36	0.53	-	-	-	-	-	-	-	-	-	0.31	-	-	-	-	-	-	
1328	-	NI	0.70	0.17	0.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1331	1338	$\delta$ -Elemene (C15)	7.84	1.77	2.55	-	-	-	-	-	3.18	3.80	-	-	-	-	-	2.60	-	-	-	-	-	-	
1339	-	NI	-	-	-	-	-	-	-	-	-	-	-	0.13	-	1.12	-	-	-	-	-	-	-	-	
1342	-	NI	-	-	-	-	0.78	1.32	-	1.55	-	-	-	-	-	-	-	-	-	0.72	-	-	-	-	
1343	1353	Citronellyl acetate (C10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-	
1348	-	NI	-	0.18	-	-	-	-	-	-	-	-	-	-	-	9.81	-	-	-	-	-	-	4.96	-	
1351	1362	Neryl acetate (C10)	-	3.39	-	-	1.01	0.83	0.58	0.92	-	-	2.27	-	3.62	-	-	-	-	-	-	-	8.28	0.67	6.84
1353	1348	$\alpha$ -Cubebene (C15)	-	-	-	-	-	-	-	-	-	-	-	0.41	-	-	-	-	-	-	-	-	-	-	
1368	-	NI	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1375	1381	Geranyl acetate (C10)	-	-	-	1.38	0.64	0.70	0.68	0.67	-	-	5.38	-	0.81	-	-	-	-	-	-	0.86	-	-	
1379	1375	$\alpha$ -Ylangene (C15)	0.23	0.84	-	-	-	-	-	-	-	-	-	0.97	-	-	-	-	-	-	-	-	-	-	
1383	1391	$\beta$ -Elemene (C15)	4.36	13.38	1.63	26.01	13.01	13.18	11.96	10.62	4.05	3.75	-	-	-	-	84.83	3.27	10.12	16.38	16.65	-	-	-	
1394	1388	$\beta$ -Cubebene (C15)	-	-	-	-	-	-	-	-	-	-	-	3.20	-	-	-	-	-	-	-	-	-	-	
1409	1409	Z-Caryophyllene (C15)	-	-	-	-	-	-	-	-	-	-	-	-	-	6.25	5.6	0.28	-	-	-	-	-	-	
1412	-	NI	0.30	-	-	-	-	-	-	-	-	-	-	0.09	-	-	-	-	-	-	-	-	-	-	
1414	1419	(E)-Caryophyllene (C15)	0.32	11.24	1.79	11.01	9.65	5.80	6.24	4.89	30.41	28.85	1.16	38.47	0.87	-	-	18.71	5.67	7.96	6.43	3.18	-	0.67	
1422	1417	Sesquithujene (C15)	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-	-	-	
1423	1437	$\gamma$ -Elemene (C15)	2.46	1.97	1.15	-	-	-	-	-	2.84	2.64	-	-	-	-	-	2.55	-	-	-	-	-	-	
1424	1432	$\beta$ -Copaene (C15)	-	-	-	0.36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1438	-	NI	0.69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1446	1441	Aromadendrene (C15)	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1448	1443	(Z)- $\beta$ -Farnesene (C15)	0.80	5.56	3.79	-	5.82	4.23	4.45	3.38	1.20	-	-	-	0.66	-	-	-	5.16	5.42	5.65	-	-	-	
1454	1455	$\alpha$ -Humulene (C15)	1.10	2.62	0.57	3.41	2.01	1.71	1.87	1.60	3.42	3.04	-	5.23	-	-	0.46	-	2.33	1.65	2.31	2.39	-	-	
1468	1466	9-epi-(E)-Caryophyllene (C15)	-	-	-	-	-	-	-	-	-	-	-	0.38	-	1.06	-	-	-	-	-	-	-	-	
1475	-	$\gamma$ -Gurjunene (C15)	-	-	-	-	-	-	-	-	-	-	-	-	0.44	-	-	-	-	-	-	-	-	-	
1479	1480	$\gamma$ -Muurolole (C15)	-	-	1.76	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1480	1485	Germacrene D (C15)	16.9	6.64	-	-	-	-	-	-	11.26	9.44	-	6.40	-	-	-	4.50	-	-	-	-	-	-	
1487	1490	$\beta$ -Selinene (C15)	0.26	-	-	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1489	-	NI	-	0.20	-	-	-	-	-	-	-	-	-	-	-	1.49	-	-	-	-	-	-	-	-	
1493	1498	$\alpha$ -Selinene (C15)	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1493	-	NI	-	-	-	-	0.58	0.58	0.49	-	-	-	-	-	-	-	-	0.93	-	-	0.46	-	-	-	
1495	1500	Bicyclogermacrene (C15)	-	2.37	9.41	-	-	-	-	-	3.45	2.46	-	14.55	-	-	-	4.54	-	-	-	1.56	-	-	
1498	-	NI	0.51	-	-	-	1.04	0.54	0.96	0.87	-	-	-	-	1.24	-	-	-	0.84	-	-	-	-	-	
1499	1493	$\alpha$ -Zingiberene (C15)	-	-	-	-	-	-	-	-	-	-	-	21.47	-	-	-	-	-	-	-	-	-	-	
1498	1506	(E,E)- $\alpha$ -Farnesene (C15)	-	-	1.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.18	1.04	-	-	
1502	1503	trans- $\beta$ -Guaiene (C15)	1.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1504	1506	$\beta$ -Bisabolene (C15)	-	-	-	-	-	-	-	-	-	-	-	-	1.90	1.76	-	-	-	-	-	-	-	-	
1506	-	NI	0.27	-	-	1.56	0.77	-	-	0.69	0.26	-	0.47	-	-	-	-	0.26	0.67	0.96	0.80	-	-	-	
1507	1509	Germacrene A (C15)	-	0.85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.41	-	-	-	
1516	1512	$\delta$ -Amorphene (C15)	0.57	-	0.69	0.45	-	-	-	-	-	-	-	-	-	-	-	0.33	-	-	-	-	-	-	
1520	-	NI	-	-	-	-	-	-	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	
1521	1523	$\delta$ -cadinene (C15)	0.18	-	-	-	0.76	0.63	0.70	0.58	-	-	-	0.44	-	-	-	-	-	1.06	-	-	-	-	
1521	1523	$\beta$ -sesquiphellandrene (C15)	-	0.44	0.49	-	-	-	-	-	-	-	-	4.09	-	-	-	-	0.53	-	-	-	-	-	
1532	-	NI	1.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1542	1534	trans-Cadina-1,4-diene (C15)	-	-	-	-	-	-	-	-	-	-	-	0.27	-	-	-	-	-	-	-	-	-	-	
1543	-	NI	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25	-	-	-	-	-	-	
1548	1550	Elemol (C15)	6.83	-	0.30	0.61	-	-	-	-	-	-	-	0.84	-	-	-	-	-	-	-	-	-	-	
1549	-	NI	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	
1552	-	NI	-	0.25	0.27	-	-	-	-	-	-	-	-	-	-	-	-	0.68	-	-	-	-	-	-	

1557	-	NI	-	-	0.95	-	-	-	-	-	-	-	-	-	1.55	-	-	-	-	-	-	-	-	-
1559	1563	(E)-Nerolidol (C15)	1.91	0.73	-	-	-	-	-	-	1.73	-	-	-	-	-	-	-	-	-	0.58	-	-	-
1560	1561	Germacrene B (C15)	7.63	6.64	3.58	-	-	-	-	-	13.93	12.02	-	-	-	-	-	16.76	-	-	-	-	1.15	-
1577	1576	Germacrene D-4-ol (C15)	0.43	0.32	1.78	0.32	-	-	-	-	0.39	-	-	-	-	-	-	0.81	-	-	-	-	-	-
1583	-	NI	-	-	-	-	0.37	0.35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1583	1578	Spathulenol (15)	-	-	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-	-	-	-	-	-	-
1584	1583	Caryophyllene oxide (C15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.07	-	-	-	-	-	-
1587	1579	trans-Sesquisabinene hydrate	-	0.31	0.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1595	-	NI	5.01	-	0.30	-	-	-	-	-	-	-	-	0.42	-	-	-	-	-	-	-	-	-	-
1597	1601	Guaiol (C15)	3.51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1612	-	NI	-	-	-	-	-	-	-	-	-	-	-	0.15	-	-	-	0.50	-	-	-	-	-	-
1621	-	NI	-	-	0.68	-	-	-	-	-	0.27	-	-	-	0.12	-	-	-	-	-	-	-	-	-
1625	-	NI	6.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.49	-	-	-	-	-	-
1628	-	NI	1.82	-	0.32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1630	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.74	-	-	-	-	-	-
1635	1631	Eremoligenol (C15)	2.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1638	-	NI	2.34	-	-	-	-	-	-	-	-	-	-	0.13	-	-	-	-	-	-	-	-	-	-
1642	-	NI	-	-	0.28	-	-	-	-	-	-	-	-	-	-	-	-	0.30	-	-	-	-	-	-
1643	1648	Agarospinol (C15)	1.23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1644	-	NI	-	-	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1647	1646	Cubenol (C15)	0.45	-	-	-	-	-	-	-	-	-	-	0.32	-	-	-	-	-	-	-	-	-	-
1651	-	NI	0.69	-	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1656	1654	$\alpha$ -Eudesmol (C15)	-	0.21	-	0.34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1661	-	NI	-	0.24	-	0.54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1663	1654	$\alpha$ -Cadinol (C15)	10.51	-	1.43	-	-	-	-	-	0.26	-	-	-	-	-	-	0.58	-	-	-	-	-	-
1668	-	NI	0.60	-	-	-	-	-	-	-	-	-	-	0.39	-	-	-	-	-	-	-	-	-	-
1675	-	NI	-	-	0.43	-	0.24	0.16	0.19	-	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-
1691	1700	$\beta$ -Sinensal (C15)	-	4.40	19.16	11.18	14.70	10.01	10.09	11.62	-	-	-	-	-	-	-	10.22	20.97	-	-	-	-	-
1701	-	NI	0.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1705	1701	(2Z,6Z)-Farnesol (C15)	-	1.05	-	-	-	-	-	-	-	-	-	-	-	-	-	0.84	-	-	-	-	-	-
1710	1718	(2Z,6E)-Farnesol (C15)	-	-	-	-	-	-	-	-	4.05	-	-	-	-	-	-	-	-	-	-	-	-	-
1714	-	NI	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.33	-	-	-	-	-	-
1729	-	NI	-	-	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1734	1725	(2E,6E)-Farnesol (C15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.37	-	-	-	-	-	-
1746	1757	$\alpha$ -Sinensal (C15)	-	-	11.06	-	2.77	1.78	2.95	3.44	-	-	-	-	-	-	-	-	4.38	-	-	-	-	-
1877	-	NI	-	-	-	-	-	-	-	-	-	-	-	0.10	-	-	-	-	-	-	-	-	-	-
1926	-	NI	-	-	-	-	-	-	-	-	-	-	-	0.12	-	-	-	-	-	-	-	-	-	-
2094	-	NI	-	-	-	-	-	-	-	-	0.31	-	-	-	-	-	-	-	-	-	-	-	-	-
2107	1943	Phytol (C20)	3.34	8.02	4.93	-	9.03	6.48	11.98	12.1	12.10	11.26	1.55	-	1.94	1.46	-	19.54	14.97	16.41	4.87	2.92	0.57	0.75
2148	-	NI	-	-	-	-	-	-	-	-	0.46	-	-	-	-	-	-	-	-	-	-	-	-	-
2155	-	NI	-	-	-	-	-	-	-	-	0.44	-	-	-	-	-	-	-	-	-	-	-	-	-

RI\* Adams 2007 [19]; NI: Not identified; C10, C15 and C20: mono-, sesqui-, and diterpenes, respectively. C-1–C22: see Material and Methods-Plant material.

**Table S2.** The score scatterplot obtained according to the two major groups.

Genotypes of <i>Citrus</i>	Factor 1 (45.4%)	Factor 2 (13.1%)
c01	7.604582	-11.1499
c02	-21.0289	-10.019
c03	25.2457	-3.65029
c04	6.412549	-13.5975
c05	31.77869	-4.24454
c06	58.48798	-1.97973
c07	56.91939	-8.75231
c08	-86.213	-2.40348
c09	-80.4554	-0.37896
c10	-78.7388	-1.38268
c11	-17.6849	-5.82211
c12	-17.8197	14.655
c13	-17.9494	0.02866
c14	-2.34417	7.285903
c15	16.04557	65.93625
c16	-19.6212	-5.87912
c17	-28.6574	-9.67238
c18	73.23972	-26.7951
c19	23.53946	44.26681
c20	84.56993	39.76504
c21	-57.9369	3.004699
c22	44.60608	-69.2152