Table S1. List of diagnostic primers for RT-qPCR primers in gene expression

Gene name	Abbreviation	Gene ID [1]	Direction (5'-3')	Sequence
β-Ocimene synthase	*OS*	TR9747_c0_g2_i1	Forward	AGAGGTTGACGATTATGTGGAT
			Reverse	TTCTGCGACTGTTTCTCTTGTT
Limonene synthase	*LS*	TR2025_c0_g1_i1	Forward	TCCCAGAAAGGTATGCAGTCA
			Reverse	CTTAGTGGAGGCGAAATGGT
Linalool synthase	*LIS*	MSYJ183890	Forward	CATGGAAGCGCCTAAACCAG
			Reverse	TCGAGTCTCGGAAGCCTTTG
γ-Terpinene synthase	*TPS*	MSYJ045690	Forward	GGGGAGATGTTCCCAAATCAA
			Reverse	CCGAATCGAGCACTGTTCATC
α-Terpineol synthase	*alpha-TPS*	MSYJ196990	Forward	AGCAAAAGAGGAGGCCTTGC
			Reverse	TGATGTTGCCAGGTCATTGG
actin	*ACTIN*	MSYJ081850	Forward	CCAAGCAGCATGAAGATCAA
			Reverse	ATCTGCTGGAAGGTGCTGAG

[1] "MSYJ" series of gene ID are referenced by Citrus Pan-genome to Breeding Database (CPBD, http://citrus.hzau.edu.cn/index.php);"TR" series are selected from NGS contigs which was entrusted to Tri-I Biotech Inc. (Taipei, Taiwan).

Table S2. Volatile composition profiles in varieties of *Citrus depressa* in Taiwan

Compound	Accession [1]						
	OWD-1	OWD-2	HLN	GS-1	GS-2	OKN-1	OKN-2
trans-2-Hexenal	19.25b [2]	8.54c	25.63a	11.59c	11.73c	8.18c	9.51c
β-Thujene	7.70d	8.00cd	6.48d	10.95ab	9.97bc	10.27b	12.56a
α-Pinene	10.51bc	10.48bc	7.91c	12.9ab	11.89b	11.38b	15.41a
β-Phellandrene	1.95b	2.63b	1.76b	5.11a	4.92a	5.14a	5.44a
β-Pinene	15.04cd	15.16cd	13.1d	20.68ab	18.60bc	18.55bc	24.47a
β-Myrcene	11.19ab	11.74ab	9.94b	11.68ab	10.58ab	11.00ab	12.74a
α-Terpinene	9.17c	9.19c	8.29c	14.38ab	12.26b	12.79b	15.57a
p-Cymene	76.42bc	85.4abc	60.53c	78.17abc	79.92abc	96.64ab	108.87a
Limonene	28.19bc	27.68bc	24.30c	34.75ab	30.61bc	32.11ab	39.54a
β-Ocimene	59.63a	49.74ab	55.81a	30.01cd	26.71d	38.22c	38.92bc
γ-Terpinene	390.89b	396.44b	371.09b	477.95b	416.77b	470.88b	609.87a
α- Terpinolene	10.23bc	10.72c	9.11c	18.38a	18.64a	14.18b	18.10a
4-Carene	15.40cd	13.57d	12.29d	21.27ab	18.49bc	23.93a	19.18abc
Linalool	1272.25a	1446.22a	1272.15a	644.86b	693.61b	625.63b	722.50b
cis-Sabinene hydrate	5.23b	6.99b	3.84b	17.00a	17.68a	20.57a	20.81a
Terpinen-4-ol	11.68a	11.18a	10.75a	10.25a	11.54a	11.40a	11.85a
α-Terpineol	25.04de	27.47cde	21.85e	32.28bcd	35.37ab	42.26a	33.94bc
Caryophyllene	30.29a	19.3bc	22.45ab	3.52d	4.04d	16.42c	29.01ab

1

α-Farnesene	2.00d	1.09d	2.99d	14.94a	13.11ab	4.43cd	8.61bc
Bicyclogermacrene	8.21bc	6.02c	6.06c	13.15a	10.77ab	8.08bc	13.70a
δ-Cadinene	3.86a	3.09ab	2.14b	3.15ab	2.03b	1.74b	4.02a
Monoterpene (%)	96.8	98.2	97.1	96.9	97.1	97.4	96.3
Sesquiterpene (%)	2.2	1.4	1.6	2.3	2.1	2.1	3.1

[1] Accessions represent the collecting locations of the germplasm scion. OWD-1 and OWD-2 mean from Ouwanda, Nantou county, HLN means Hualien county, GS-1 and GS-2 are the original sample trees in germplasm, and OKN-1 and OKN-2 mean the scion from Okinawa, Japan.

[2] Relative concentration (ng · g^{-1} FW) was calculated by the rate of peak area of the target compound to the peak area of internal standard (IS), times the concentration and volume of IS, then expressed by per g fresh weight of leaf sample. Data are shown as the average relative concentration by three replicates per tree in one season. The different letters represent the significant difference within varieties by LSD ($p < 0.05$).

Table S3. Volatile composition profiles in seasonal variation of *Citrus depressa* in Taiwan

Compound	Season			
	Spring	Summer	Autumn	Winter
trans-2-Hexenal	1.07c [1]	42.96a	5.74b	4.19bc
β-Thujene	12.27b	16.71a	4.19c	4.49c
α-Pinene	12.98b	21.16a	5.39c	6.47c
β-Phellandrene	6.08b	7.11a	0.91c	1.30c
β-Pinene	21.12b	34.56a	7.51c	8.59c
β-Myrcene	15.13b	17.30a	5.75c	6.89c
α-Terpinene	14.81b	20.84a	5.66c	5.35c
p-Cymene	113.02b	175.03a	22.54c	24.22c
Limonene	40.45b	53.21a	14.16c	16.28c
β-Ocimene	51.56b	74.17a	21.84c	23.32c
γ-Terpinene	590.48b	770.99a	197.54c	231.78c
α- Terpinolene	31.60a	11.08b	8.72b	5.38c
4-Carene	7.57c	41.15a	10.36bc	11.85b
Linalool	1421.47a	1110.97b	728.20c	554.92d
cis-Sabinene hydrate	29.73a	11.17b	7.53c	4.21d
Terpinen-4-ol	14.59a	12.71b	9.67c	7.96d
α-Terpineol	52.84a	33.74b	23.91c	14.2d
Caryophyllene	10.94b	16.24b	16.69b	27.59a
α-Farnesene	14.89a	3.19c	1.50c	7.37b
Bicyclogermacrene	0.00b	11.74a	11.78a	14.19a
δ-Cadinene	0.00c	4.51a	2.32b	4.61a
Monoterpenes (%)	98.9	96.9	96.6	94.1
Sesquiterpenes (%)	1.0	1.4	2.9	5.5

[1] Relative concentration (ng · g^{-1} FW) was calculated by the rate of peak area of the target compound to the peak area of internal standard (IS), times the concentration and volume of IS, then expressed by per g fresh weight of leaf sample. Data are shown as the average relative concentration by three replicates per tree in one season. The different letters represent the significant difference within seasons by LSD ($p < 0.05$).

Table S4. Standardized determinant function coefficient of volatile components

Compound	Score (1)	Score (2)
trans-2-Hexenal	0.193	0.150
β-Thujene	3.387	2.464
α-Pinene	-2.790	-1.996
β-Phellandrene	-0.056	0.028
β-Pinene	0.659	-1.470
β-Myrcene	-0.269	2.737
α-Terpinene	-1.481	-3.018
p-Cymene	-0.928	-0.758
Limonene	0.209	-0.202
β-Ocimene	-1.129	-1.099
γ-Terpinene	0.005	-0.217
α- Terpinolene	1.602	3.026
4-Carene	3.011	4.243
Linalool	-1.027	1.227
cis-Sabinene hydrate	0.941	-0.720
Terpinen-4-ol	0.614	-1.369
α-Terpineol	-1.226	-1.231
Caryophyllene	0.187	-0.352
α-Farnesene	0.465	0.342
Bicyclogermacrene	0.861	0.044
δ-Cadinene	-0.735	-0.143

Table S5. The relative gene expression of volatile components

Accession [1]	Genes				
	LS	*OS*	*γ-TPS*	*LIS*	*α-TPS*
OWD-1	2.659	0.500	0.947	0.374	5.284
OWD-2	2.532	0.379	0.881	0.645	4.117
HLN	2.654	1.067	0.469	0.375	5.878
OKN-1	1.440	7.918	3.249	1.483	6.623
OKN-2	1.335	4.419	1.448	0.941	4.581
GS-1	0.501	4.377	2.688	5.033	15.524
GS-2	0.275	3.931	2.338	2.485	17.278

1 Accessions include OWD-1 and OWD-2 (Ouwanda, Nantou), HLN (Hualien), GS-1 and GS-2 (original sample trees in germplasm), and OKN-1 and OKN-2 (Okinawa, Japan). The gene abbreviations respectively represent as follows: *LS*, gene of limonene synthase; *OS*, gene of β-ocimene synthase; *γ-TPS* and *α-TPS*, genes of γ-terpinene synthase and α-terpinol synthase; *LIS*, gene of linalool synthase.

2 The relative fold difference was calculated by the comparative cycle threshold ($2^{-\Delta\Delta Ct}$) value.