

Table S1. Analysis of molecular variance (AMOVA) of *G. jasminoides* genotypes.

Source of variation	df	SS	MS	Percentage of variation	Total variance (%)	Fixation index
Among populations	4	612.653	153.163	18.772	49%	$\Phi_{st} = 0.488$
Within populations	31	609.875	19.673	19.673	51%	$p < 0.001$
Total	35	1222.528		38.445	100%	

df, degree of freedom; SS, Sum of square; MS, Mean square; Φ_{st} , level of genetic differentiation between populations.

Table S2. Analysis of heterozygosity (mean \pm SE) among *G. jasminoides* cultivars.

	'Long Lasting'	'Blanco Arbusto'	'Hedge Flower'	'New Magnifica'	Reference cultivars
Heterozygosity (mean)	0.124 \pm 0.012	0.137 \pm 0.013	0.175 \pm 0.014	0.170 \pm 0.013	0.186 \pm 0.013

Table S3. Mean values (numerical) of seven morphological traits of ornamental interest measured in the 32 seed-derived genotypes and the four reference cultivars of *G. jasminoides*.

Genotype	Number of petals	Flower weight (g)	Flower diameter (cm)	Petal length (cm)	Petal width (cm)	Leaf length (cm)	Leaf width (cm)
36-1	5.33 b	1.68 m	6.87 bcdefg	3.27 cdef	1.75 fgh	7.43 i	2.77 fg
36-2	5.67 b	1.46 n	6.63 defg	3.17 cdef	1.88 defgh	7.18 i	3.03 e
36-3	5.67 b	1.88 efg	7.17 bcdef	3.50 bcde	1.70 fgh	7.83 h	2.73 fgh
36-4	5.67 b	1.73 lm	7.03 bcdefg	3.33 bcdef	1.97 cdefg	7.20 i	2.50 hij
36-5	6.33 b	1.52 n	6.67 cdefg	3.20 cdef	1.67 ghi	8.07 fgh	3.02 e
36-6	6.33 b	1.44 o	6.30 g	3.00 fg	1.35 i	7.47 i	2.73 fgh
36-7	6.00 b	1.80 hijk	7.10 bcdefg	3.43 bcdef	1.97 cdefg	7.95 gh	3.03 e
36-8	5.67 b	1.48 n	6.47 fg	3.10 def	1.83 efgh	7.48 i	2.77 fg
51-1	5.33 b	1.80 ijkl	7.13 bcdefg	3.33 bcdef	2.00 bcdefg	8.17 efg	3.23 e
51-2	6.00 b	1.49 n	6.47 fg	3.07 ef	1.97 cdefg	7.22 i	3.73 cd
51-3	5.83 b	2.03 d	7.50 bcd	3.57 bcde	2.20 abcd	7.33 i	3.73 cd
51-4	5.67 b	1.94 e	7.30 bcdef	3.53 bcde	1.90 cdefgh	7.45 i	3.63 d
51-5	5.83 b	1.52 n	6.57 efg	3.17 cdef	1.94 cdefg	8.03 fgh	3.83 cd
51-6	5.67 b	1.86 fgh	7.10 bcdefg	3.50 bcde	2.02 bcdef	7.48 i	3.65 cd
51-7	5.50 b	1.70 m	6.90 bcdefg	3.43 bcdef	2.20 abcd	7.83 h	3.87 c
51-8	5.67 b	1.89 ef	7.20 bcdef	3.50 bcde	2.33 ab	7.47 i	4.13 b
29-1	5.83 b	2.01 d	7.47 bcd	3.80 ab	1.87 defgh	8.27 cdef	2.53 ghij
29-2	5.33 b	1.75 jklm	7.03 bcdefg	3.40 bcdef	1.85 efgh	8.40 cde	2.45 ij
29-3	6.00 b	2.08 d	7.62 b	3.50 bcde	2.00 bcdefg	8.05 fgh	2.57 fghij
29-4	5.67 b	2.07 b	7.50 bc	3.62 bcd	1.60 hi	8.53 c	2.75 fg
29-5	6.67 b	2.22 c	8.40 a	4.10 a	1.83 efgh	8.83 b	3.20 e
29-6	5.83 b	1.83 ghi	7.20 bcdef	3.57 bcde	1.73 fgh	8.07 fgh	2.53 ghij
29-7	6.00 b	1.72 m	6.97 bcdefg	3.30 bcdef	2.03 bcdef	8.20 defg	2.79 f
29-8	5.33 b	1.91 ef	7.23 bcdef	3.47 bcdef	2.13 abcde	8.55 c	2.77 fg
70-1	6.00 b	1.92 e	7.23 bcdef	3.43 bcdef	1.83 efgh	7.95 gh	2.48 ij
70-2	6.17 b	2.04 d	7.53 bc	3.65 bc	1.72 fgh	8.47 cd	2.77 fg
70-3	5.67 b	2.06 d	7.55 b	3.80 ab	1.90 cdefgh	8.30 cdef	2.77 fg
70-4	5.33 b	2.05 d	7.53 b	3.60 bcd	1.90 cdefgh	8.03 fgh	2.60 fghij
70-5	5.33 b	1.74 klm	7.03 bcdefg	3.57 bcde	1.97 cdefg	7.85 h	2.58 fghij
70-6	5.67 b	1.80 hij	7.10 bcdefg	3.53 bcde	1.80 efgh	8.20 defg	2.67 fghi
70-7	5.33 b	1.69 m	7.03 bcdefg	3.18 cdef	1.93 cdefgh	8.37 cde	2.50 hij
70-8	5.83 b	1.71 m	6.90 bcdefg	3.33 bcdef	1.93 cdefgh	8.15 efg	2.37 j
Pelion	25.67 a	4.46 b	6.63 defg	2.63 g	2.23 abc	7.30 i	3.70 cd
Joy	6.67 b	1.94 e	7.17 bcdefg	3.37 bcdef	2.03 bcdef	8.87 b	4.20 b
Grandiflora	24.33 a	5.55 a	7.40 bcde	3.53 bcde	2.47 a	10.38 a	5.47 a
Kimberly	25.33 a	5.51 a	7.30 bcdef	3.43 bcdef	2.40 a	10.25 a	5.33 a

Different letters in columns for each of the traits indicate statistically significant differences among the genotypes according to Tukey's multiple comparison test at $p < 0.05$.

Table S4. Mean values (numerical) of the major volatile compounds of flower petals (jasminelactone, linalool, α -farnesene, benzyl tiglate and cis-3-hexenyltiglate) identified with GC-MS in the 32 seed-derived genotypes and the four reference cultivars of *G. jasminoides*.

Genotype	jasminelactone ($\mu\text{g/g}$)	linalool ($\mu\text{g/g}$)	α -farnesene ($\mu\text{g/g}$)	benzyl tiglate ($\mu\text{g/g}$)	cis-3- hexenyltiglate ($\mu\text{g/g}$)
36-1	1.335 b	0.032 lmn	0.123 klmno	0.069 def	0.041 fg
36-2	0.866 defg	0.078 ijklm	0.240 h	0.013 j	0.052 de
36-3	0.530 ijk	0.124 ghij	0.115 mno	0.040 fghij	0.028 hijkl
36-4	0.981 cdef	0.126 ghij	0.285 gh	0.062 efgh	0.062 cd
36-5	1.336 b	0.048 klmn	0.178 ij	0.047 fghij	0.042 efg
36-6	0.192 lm	0.088 hijkl	0.124 klmn	0.039 fghij	0.071 c
36-7	0.251 lm	0.070 jklmn	0.052 pq	0.041 fghij	0.060 cd
36-8	1.050 cd	0.267 f	0.186 ij	0.026 ghij	0.065 c
51-1	0.400 kl	0.543 b	0.115 mno	0.062 efg	0.041 fg
51-2	0.214 lm	0.121 ghij	0.080 mnop	0.011 j	0.014 mn
51-3	1.038 cd	0.392 d	0.071 nop	0.045 fghij	0.034 ghi
51-4	0.722 fghij	0.011 n	0.167 ijkl	0.016 j	0.036 fgh
51-5	0.595 hijk	0.518 bc	0.082 mnop	0.050 fghij	0.033 ghij
51-6	0.888 defg	0.164 g	0.310 gh	0.037 fghij	0.028 hijkl
51-7	0.744 efghij	0.014 mn	0.107 mno	0.018 ij	0.040 fg
51-8	1.605 a	0.664 a	0.602 a	0.321 a	0.182 a
29-1	1.022 cd	0.530 bc	0.171 ijk	0.120 c	0.028 hijkl
29-2	0.240 lm	0.274 f	0.174 ijk	0.014 j	0.017 lmn
29-3	0.110 m	0.078 ijklm	0.016 q	0.021 ij	0.016 lmn
29-4	0.508 jk	0.115 ghij	0.014 q	0.034 fghij	0.019 klmn
29-5	0.710 fghij	0.473 c	0.405 cd	0.100 cd	0.095 b
29-6	0.688 ghij	0.026 lmn	0.048 pq	0.026 ghij	0.011 mn
29-7	0.089 m	0.245 f	0.122 klmno	0.091 cde	0.009 n
29-8	0.790 defghi	0.536 b	0.163 ijkl	0.023 hij	0.013 mn
70-1	0.525 ijk	0.043 klmn	0.033 pq	0.033 fghij	0.010 n
70-2	1.327 b	0.522 bc	0.338 ef	0.019 ij	0.012 mn
70-3	1.000 cde	0.048 klmn	0.436 bc	0.013 j	0.016 mn
70-4	0.582 hijk	0.333 e	0.083 mnop	0.056 efghi	0.036 gh
70-5	0.380 kl	0.077 ijklm	0.356 ef	0.038 fghij	0.012 mn
70-6	1.178 bc	0.359 d	0.372 de	0.045 fghij	0.015 mn
70-7	0.951 cdefg	0.257 f	0.053 pq	0.021 ij	0.022 jklm
70-8	0.835 defgh	0.225 f	0.069 op	0.012 j	0.018 lmn
Pelion	1.200 bc	0.107 ghijk	0.133 jklm	0.198 b	0.023 ijklm
Joy	0.563 hijk	0.139 ghi	0.456 b	0.060 efgh	0.037 fgh
Grandiflora	1.157 bc	0.153 g	0.254 h	0.167 b	0.048 ef
Kimberly	1.163 bc	0.148 gh	0.107 mno	0.180 b	0.030 ghijk

Different letters in columns for each of the volatile compounds indicate statistically significant differences among the genotypes according to Tukey's multiple comparison test at $p < 0.05$.