Supplementary Material

Table S1. The cloning primers of VvmiR156b/c/d and *VvSPL9.*

Primer name	Forward primer sequences (5'-3')	Reverse primer sequences (5'-3')	Use
VvmiR156b	CATGCCATGGGTAGCAGAGAGAGACCGGAGCTT	GACTAGTCTCTCTTTTCATTTTAAAGTCGCTCT	VvmiR156b clone
VvmiR156c	CATGCCATGGCACTTGAGAGATGAGACTCAAACTG	GACTAGTCTCACATTTATTCCAATGTCCA	VvmiR156c clone
VvmiR156d	CATGCCATGGCCGGAGAGGGAGGGGAACTGAAC	GACTAGTAGTGTGAGGCTTTGGGGGGATTATG	VvmiR156d clone
VvSPL9	ACACGGGGGACTCTTGACCATGGTAGATCTATGGAAAGGGGTTCGAGCT	TCCAGTGAAAAGTTCTTCTCCTTTACTAGTCTAAAGTGACCAGTGCATCTGCT	VvSPL9 clone

Table S2 The cloning primers of VvmiR156b/c/d and *VvSPL9* promoters.

Primer name	Primer sequence	Primer use
P-VvmiR156b-F	CAGCTATGACCATGATTACGCCAAGCTTCTGGATTTGACACAAGATTGGA	Amplification of VvmiR156b promoter
P-VvmiR156b-R	ACATAAGGGACTGACCACCCGGGGATCCTGCCCCAGAAGAAGAAGAAAG	
P-VvmiR156c-F	CAGCTATGACCATGATTACGCCAAGCTTACTCCCCTCATCTCCCACTCT	Amplification of VvmiR156c promoter
P-VvmiR156c-R	ACATAAGGGACTGACCACCCGGGGATCCACCATTTGTAACTCCCATACAAACA	
P-VvmiR156d-F	CAGCTATGACCATGATTACGCCAAGCTTGACAATGATACGGCCATTGA	Amplification of VvmiR156d promoter
P-VvmiR156d-R	ACATAAGGGACTGACCACCCGGGGATCCCGTCTCCCTCTTATCTTCGC	

Table S3 Quantitative primers of VvmiR156b/c/d and *VvSPL9.*

Primer name	Primer sequence	Primer use
qVvmiR156b-F	TTGGACTTCAACACCCAACA	qRT-PCR for VvmiR156b
qVvmiR156b-R	TTCTTCTTCTGGGGCACATT	
qVvmiR156c-F	GCAGCTCCTTCTGTTCCATC	qRT-PCR for VvmiR156c
qVvmiR156c-R	CATGGTCTGTTCTTGCATGG	
qVvmiR156d-F	GAGAGGGAGGGGAACTGAAC	qRT-PCR for VvmiR156d
qVvmiR156d-R	CTCATCCCTTCTGCTTCTGC	
qVvSPL9-F	TTCGAGCTCTTTGACCGTTT	qRT-PCR for VvSPL9
qVvSPL9-R	CTCCCTGAACAACCCCACTA	

Table S4 Quantitative primers for anthocyanin synthesis genes of grape.

Primer name	Primer sequence	Primer use
qVvPAL-F	CATCGAACGGGAGATCAACT	qRT-PCR for VvPAL
qVvPAL-R	TGATGGCAGTCCATTGTTGT	
qVv4CL-F	ACCACCTCCCTCTCCACAC	qRT-PCR for Vv4CL
qVv4CL-R	GCTCCGAGAAAGGAGAACG	
qVvC4H-F	CGTTGTTCGTGAAGCTCAAA	qRT-PCR for VvC4H
qVvC4H-R	GTCCTTGAAGAGCTGCAACC	
qVvCHS-F	GAAGATGGGAATGGCTGCTG	qRT-PCR for VvCHS
qVvCHS-R	AAGGCACAGGGACACAAAAG	
qVvCHI-F	TCCAGATCAAGTTCACAGCA	qRT-PCR for VvCHI
qVvCHI-R	GAAATAAGAGCCTCAAAGAA	
qVvF3H-F	CTGTGGTGAACTCCCGACTGC	qRT-PCR for VvF3H
qVvF3H-R	CAAATGTTATGGGCTCCTCC	

qVvF3'H-F	GCCTCCGTTGCTGCTCAGTT	qRT-PCR for VvF3'H
qVvF3'H-R	GAGAAGAGGTGGACGGAGCAAATC	
qVvF3'5'H-F	AAACCGCTCAGACCAAAACC	qRT-PCR for VvF3'5'H
qVvF3'5'H-R	ACTAAGCCACAGGAAACTAA	
qVvDFR-F	GAAACCTGTAGATGGCAGGA	qRT-PCR for VvDFR
qVvDFR-R	GGCCAAATCAAACTACCAGA	
qVvLDOX-F	AGGGAAGGGAAAACAAGTAG	qRT-PCR for VvLDOX
qVvLDOX-R	ACTCTTTGGGGATTGACTGG	
qVvOMT-F	CCAAGGGTGTCGTCCATATC	qRT-PCR for VvOMT
qVvOMT-R	GGAATTGAACTCGGCAGAAG	
qVvUFGT-F	GGGATGGTAATGGCTGTGG	qRT-PCR for VvUFGT
qVvUFGT-R	ACATGGGTGGAGAGTGAGTT	
qVvActin-F	TACAATTCCATCATGAAGTGTGATG	Actin internal reference primer
qVvActin-R	TTAGAAGCACTTCCTGTGAACAATG	

Table S5 Quantitative primers for anthocyanin synthesis genes of tomato.

Primer name	Primer sequence	Primer use
qSly-CAC-F	CCTCCGTTGTGATGTAACTG	qRT-PCR for Sly-CAC
qSly-CAC-R	ATTGGTGGAAAGTAACATCATC	
qSly-PAL-F	ATTGGGAAATGGCTGCTGATT	qRT-PCR for Sly-PAL
qSly-PAL-R	TCAACATTTGCAATGGATGCA	
qSly-CHS-F	TGGTCACCGTGGAGGAGTATC	qRT-PCR for Sly-CHS
qSly-CHS-R	GATCGTAGCTGGACCCTCTGC	
qSly-F3'H-F	GCACCACGAATGCACTTGC	qRT-PCR for Sly-F3'H
qSly-F3'H-R	CGTTAGTACCGTCGGCGAAT	
qSly-DFR-F	CAAGGCAGAGGGAAGATTCATTTG	qRT-PCR for Sly-DFR
qSly-DFR-R	GCACCATCTTAGCCACATCGTA	
qSly-3GT-F	GCACATAAGAGTGTTGGCGTTT	qRT-PCR for Sly-3GT
qSly-3GT-R	TTTCCAAACACTTTCCACCA	
qSly-ANS-F	GAACTAGCACTTGGCGTCGAA	qRT-PCR for Sly-ANS
qSly-ANS-R	TTGCAAGCCAGGCACCATA	
qSly-SPL9-F	GGTGCCAAGTTGAAGGTTGT	qRT-PCR for Sly-SPL9
qSly-SPL9-R	CCCCTGGTCGAATTCAGTTA	

Table S6 Volatile substances in 'Wink'.

Component Name	Retention Time	Reference m/z	BP Area	Content (mg)	Content ratio	BP Height	TIC	Formula (mol ion)	CAS No.	SI	RSI
2-Hexenal	5.752	41.039	125997816	1.06046E-06	9.97%	34209494	212616618	C6H10O	505-57-7	957	958
3-Hexen-1-ol, (Z)-	5.899	41.039	88262562	7.42863E-07	6.98%	15684067	54390486	C6H12O	928-96-1	830	835
Formamide, N,N-dibutyl-	28.15	71.98	84637002	7.12348E-07	6.70%	17091297	48404241	C9H19NO	761-65-9	834	834
Benzaldehyde, 2,4-dimethyl-	23.818	133.062	76969388	6.47814E-07	6.09%	13955967	69529075	C9H10O	15764-16-6	932	932
Toluene	3.488	91.062	74335451	6.25645E-07	5.88%	20112981	49714422	C7H8	108-88-3	929	929
2-Buten-1-one, 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-, (E)-	32.148	69.088	63181465	5.31767E-07	5.00%	16062904	63290033	C13H18O	23726-93-4	914	944
2-Heptenal, (Z)-	10.531	41.039	63162446	5.31607E-07	5.00%	12171274	77558899	C7H12O	57266-86-1	937	947
5,9-Undecadien-2-one, 6,10-dimethyl-, (E)-	34.502	43.03	62407156	5.2525E-07	4.94%	21715195	78471942	C13H22O	3796-70-1	897	897
2-Octenal, (E)-	15.91	41.039	51865288	4.36525E-07	4.10%	11578850	82449267	C8H14O	2548-87-0	869	869
1-Octen-3-one	11.738	55.03	51817744	4.36125E-07	4.10%	8997180	28841507	C8H14O	4312-99-6	873	883
Trichloromethane	1.925	83.055	40415625	3.40159E-07	3.20%	19332983	50728379	CHCl3	67-66-3	940	940
Hexanal	4.136	41.039	39465304	3.3216E-07	3.12%	12394274	69551462	C6H12O	66-25-1	886	886
Nonanal	18.385	57.063	34840153	2.93232E-07	2.76%	8883263	75489308	C9H18O	124-19-6	938	938
Octanal	13.123	41.039	29406488	2.475E-07	2.33%	4121327	23434284	C8H16O	124-13-0	835	835
3-Buten-2-one, 3-methyl-	2.288	41.039	27577779	2.32109E-07	2.18%	10135478	40840268	C5H8O	814-78-8	912	912
n-Propyl acetate	2.683	43.03	25736155	2.16609E-07	2.04%	8704407	16157322	C5H10O2	109-60-4	936	938
Cyclopropane, propyl-	6.463	56.077	25321726	2.13121E-07	2.00%	4538826	14337615	C6H12	2415-72-7	892	899
2,6-Octadiene, 2,6-dimethyl-	15.699	41.039	24077891	2.02652E-07	1.91%	5656647	24250016	C10H18	2792-39-4	825	843
Pentanal	2.492	44.046	22267519	1.87415E-07	1.76%	8190054	26787576	C5H10O	110-62-3	870	895

Tetradecane	32.839	57.063	20201072	1.70023E-07	1.60%	5748057	28037470	C14H30	629-59-4	890	891
1-Propanone, 1-cyclopropyl-	3.539	41.039	18395435	1.54825E-07	1.46%	5199460	15067304	C6H10O	6704-19-4	863	877
1-Ethylhexyl propionate	23.781	57.063	18363939	1.5456E-07	1.45%	5156511	11029909	C11H22O2		874	899
2-Propyl-1-pentanol	14.505	57.063	17647825	1.48533E-07	1.40%	3642643	12675733	C8H18O	58175-57-8	896	898
Ethyl Acetate	1.905	43.03	12016625	1.01138E-07	0.95%	3948904	7062476	C4H8O2	141-78-6	878	878
Decanal	23.553	41.039	11135666	9.37234E-08	0.88%	2498923	24862351	C10H20O	112-31-2	914	914
7-Oxabicyclo[4.1.0]heptane	5.879	83.055	8701310	7.32347E-08	0.69%	2070684	3390487	C6H10O	286-20-4	911	911
2,4-Di-tert-butylphenol	35.978	191.142	8683838	7.30876E-08	0.69%	3410510	11749884	C14H22O	96-76-4	917	918
Phenylethyl Alcohol	18.791	91.062	7768862	6.53867E-08	0.61%	795361	1884354	C8H10O	22258	912	912
p-Xylene	7.462	91.062	6413030	5.39753E-08	0.51%	1022983	1794916	C8H10	106-42-3	862	862
Cyclopropane, pentyl-	16.721	41.039	5241120	4.41119E-08	0.41%	1209223	7604331	C8H16	2511-91-3	847	859
Pentadecane	35.686	57.063	4952291	4.1681E-08	0.39%	1902668	9610062	C15H32	629-62-9	900	901
Diethyltoluamide	37.312	119.03	4940193	4.15792E-08	0.39%	1590855	4105828	C12H17NO	134-62-3	920	922
trans-2-Nonenal	21.219	41.039	4875490	4.10346E-08	0.39%	1063465	8757090	C9H16O		920	922
2-Undecenal	31.142	41.039	4552501	3.83162E-08	0.36%	811170	6863181	C11H20O	2463-77-6	868	869
2-Decenal, (Z)-	26.249	41.039	4473326	3.76498E-08	0.35%	991011	9331213	C10H18O	2497-25-8	922	926
2(3H)-Furanone, 5-acetyldihydro-	15.668	84.946	4296923	3.61651E-08	0.34%	1275887	3238289	C6H8O3	29393-32-6	815	878
Benzeneacetaldehyde	15.172	91.062	3801711	3.19971E-08	0.30%	404950	740491	C8H8O	122-78-1	865	892
Cyclohexanol, 5-methyl-2-(1-methylethyl)-, (1.alpha.,2.beta.,5.alpha.)-(卤)-	21.826	71.093	3800843	3.19898E-08	0.30%	628145	4828509	C10H20O	15356-70-4	885	885
Linalool	18.177	71.093	3554353	2.99152E-08	0.28%	739385	5440785	C10H18O	78-70-6	858	858
Benzaldehyde	10.722	77.037	3538019	2.97778E-08	0.28%	294101	807286	C7H6O	100-52-7	837	837
1-Butanol, 3-methyl-	2.938	55.03	3448746	2.90264E-08	0.27%	1138350	5811306	C5H12O	123-51-3	912	912
Tridecane	23.318	57.063	3396541	2.8587E-08	0.27%	742599	3388291	C13H28	629-50-5	835	854
Ethylbenzene	6.141	91.062	3351464	2.82076E-08	0.27%	626252	1266307	C8H10	100-41-4	868	876
Heptanal	7.902	41.039	3289777	2.76884E-08	0.26%	704199	4462370	C7H14O	111-71-7	852	852
2-Propenoic acid, oxiranylmethyl ester	2.412	55.03	3223534	2.71309E-08	0.26%	1064045	1231080	C6H8O3	106-90-1	874	874
3-Tetradecene, (Z)-	32.524	55.03	3122475	2.62803E-08	0.25%	699388	5193984	C14H28	41446-67-7	890	893
Nitrogen fluoride, (E)-	12.734	66.073	3099237	2.60848E-08	0.25%	712617	827011	F2N2	13776-62-0	856	999
3-Tetradecene, (Z)-	22.889	41.039	3019835	2.54165E-08	0.24%	735828	6597666	C14H28	41446-67-7	927	928
Pyrimidine-2,4(1H,3H)-dione, 5-amino-6-nitroso-	1.811	43.03	2765388	2.32749E-08	0.22%	553550	911199	C4H4N4O3		823	902
Phthalic acid, hex-3-yl isobutyl ester	41.404	149.015	2563642	2.15769E-08	0.20%	1009310	2027685	C18H26O4		901	904
Dibutyl phthalate	42.467	149.015	2466218	2.07569E-08	0.20%	940159	1880187	C16H22O4	84-74-2	897	907
Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	31.585	71.093	2361813	1.98782E-08	0.19%	374859	1339054	C12H24O3	77-68-9	806	811
Undecane, 4,7-dimethyl-	27.188	71.093	2324283	1.95624E-08	0.18%	535098	2329513	C13H28	17301-32-5	883	885
1-Pentanol	3.482	41.039	2305126	1.94011E-08	0.18%	1039979	4177584	C5H12O	71-41-0	827	844
3-Buten-2-one, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-	35.374	177.132	2154594	1.81342E-08	0.17%	757255	3678963	C13H20O	14901-07-6	865	865
Hexane, 2,2,5-trimethyl-	26.846	71.093	2027181	1.70618E-08	0.16%	273831	367046	C9H20	3522-94-9	937	942
1,2,4-Triazin-5(4H)-one, 3,4-diamino-6-methyl-	10.571	141.06	1892690	1.59298E-08	0.15%	380924	918562	C4H7N5O	52553-11-4	845	845
Pentane, 1-chloro-	3.264	42.032	1843712	1.55176E-08	0.15%	570967	2822340	C5H11Cl	543-59-9	899	899
Hexane, 2,2,5-trimethyl-	31.185	71.093	1789429	1.50607E-08	0.14%	263507	386526	C9H20	3522-94-9	816	940
Cyclopropane, 1,1'-methylenebis-	31.953	68.115	1739926	1.46441E-08	0.14%	278101	342009	C7H12	5685-47-2	856	874
Hexadecanoic acid, ethyl ester	42.715	88.065	1725762	1.45249E-08	0.14%	682582	3320591	C18H36O2	628-97-7	834	834
3-Hydroxy-3-phenylbutan-2-one	17.372	43.03	1547419	1.30239E-08	0.12%	325037	704456	C10H12O2	458389	814	830
Sulphuric acid dibutyl ester	2.992	41.039	1526116	1.28446E-08	0.12%	468373	1015003	C8H18O4S	625-22-9	801	804
Decane, 2,3,5,8-tetramethyl-	34.77	57.063	1422240	1.19703E-08	0.11%	434794	2117472	C14H30	192823-15-7	828	830
Propanedioic acid, propyl-	22.081	60.073	1410373	1.18704E-08	0.11%	244771	715534	C6H10O4	616-62-6	868	874
Naphthalene, 1,2,3,4-tetrahydro-1,1,6-trimethyl-	23.707	159.118	1362600	1.14683E-08	0.11%	279973	750748	C13H18	475-03-6	848	852
Sulfurous acid, 2-ethylhexyl hexyl ester	35.602	57.063	1347453	1.13409E-08	0.11%	538269	3174168	C14H30O3S		820	845
Cyclopropane, nonyl-	35.069	55.03	1194111	1.00502E-08	0.09%	404726	3721268	C12H24	74663-85-7	847	852
Heptadecane, 2,6-dimethyl-	39.177	57.063	1141476	9.60724E-09	0.09%	503149	2369372	C19H40	54105-67-8	819	822

Methacrolein	1.731	38.991	1131150	9.52034E-09	0.09%	494044	1447273	C4H6O	78-85-3	874	874
Propene	12.107	41.039	1111312	9.35337E-09	0.09%	436401	1013881	C3H6	115-07-1	807	899
N-Benzyloxy-2-carbomethoxyaziridine	15.397	91.062	1018944	8.57595E-09	0.08%	189573	261956	C11H13NO3	53084-33-6	838	856
Diphenylamine	38.057	169.113	980888	8.25565E-09	0.08%	280960	986396	C12H11N	122-39-4	900	915
Octane, 2,2,6-trimethyl-	36.558	71.093	843181	7.09664E-09	0.07%	293069	689284	C11H24	62016-28-8	818	839
2-(1H-Imidazol-1-yl)acetohydrazide	14.636	82.132	821457	6.9138E-09	0.06%	171321	299978	C5H8N4O	56563-00-9	826	876
Heptane, 2,2-dimethyl-	27.852	71.093	754738	6.35226E-09	0.06%	145861	284595	C9H20	1071-26-7	818	824
1H-Indene, 1-methylene-	22.201	128.076	695946	5.85744E-09	0.06%	211990	323041	C10H8	2471-84-3	940	959
3,4-Diamino-1,2,4(4H)-triazole	25.424	43.03	538274	4.53039E-09	0.04%	155606	248808	C2H5N5	38104-45-9	820	852
Benzophenone	38.191	105.072	502884	4.23253E-09	0.04%	122103	437218	C13H10O	119-61-9	799	823
Methane, diethoxy-	2.298	59.031	485925	4.08979E-09	0.04%	211914	363137	C5H12O2	462-95-3	937	937
Cyclotrisiloxane, hexamethyl-	4.766	207.04	422545	3.55635E-09	0.03%	131233	200185	C6H18O3Si3	541-05-9	839	839
3-Octadecene, (E)-	37.5	57.063	340052	2.86205E-09	0.03%	130683	1258199	C18H36	7206-19-1	880	880
Methylene chloride	1.617	48.982	299802	2.52329E-09	0.02%	133507	356185	CH2Cl2	27639	888	888

Table S7 Classification and functional analysis of promoter of VvmiR156b/c/d.

VvmiR156b	SUM	NUM	ELEMENTS	FUCTIONS
Light-related elements	13	2	Box 4	part of a conserved DNA module involved in light responsiveness
		1	G-Box	cis-acting regulatory element involved in light responsiveness
		3	G-box	cis-acting regulatory element involved in light responsiveness
		2	GT1-motif	light responsive element
		2	Sp1	light responsive element
		3	TCT-motif	part of a light responsive element
Hormone-related elements	11	5	ABRE	cis-acting element involved in the abscisic acid responsiveness
		1	CGTCA-motif1	cis-acting regulatory element involved in the MeJA-responsiveness
		1	GARE-motif	gibberellin-responsive element
		1	P-box	gibberellin-responsive element
		1	TATC-box	cis-acting element involved in gibberellin-responsiveness
		1	TCA-element	cis-acting element involved in salicylic acid responsiveness
		1	TGACG-motif	cis-acting regulatory element involved in the MeJA-responsiveness
Stress-related elements	1	1	LTR	cis-acting element involved in low-temperature responsiveness
Circadian-related elements	1	1	circadian	cis-acting regulatory element involved in circadian control

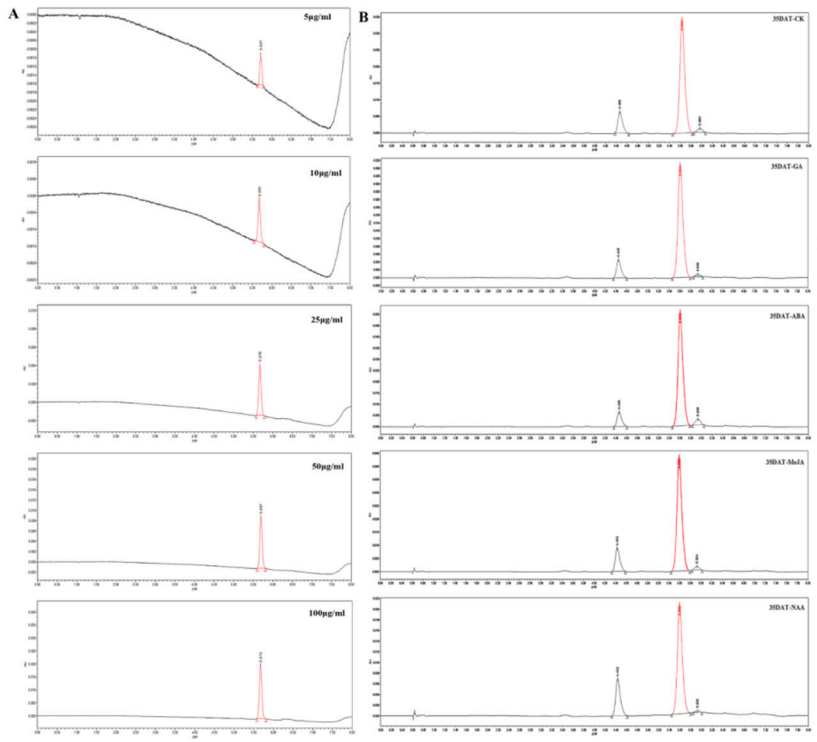

Figure S1 HPLC chromatogram of anthocyanins standard sample (Cyanidin-3-O-glucoside chloride).

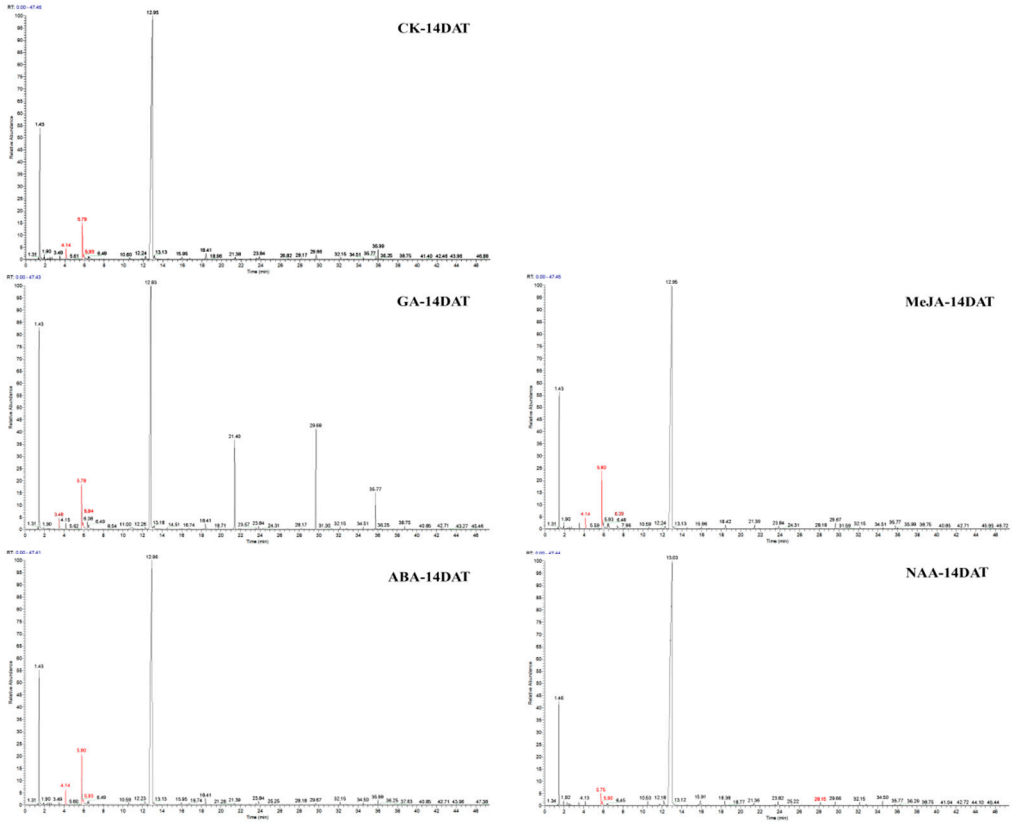

Figure S2 GC–MS chromatogram of 'Wink' berry flesh

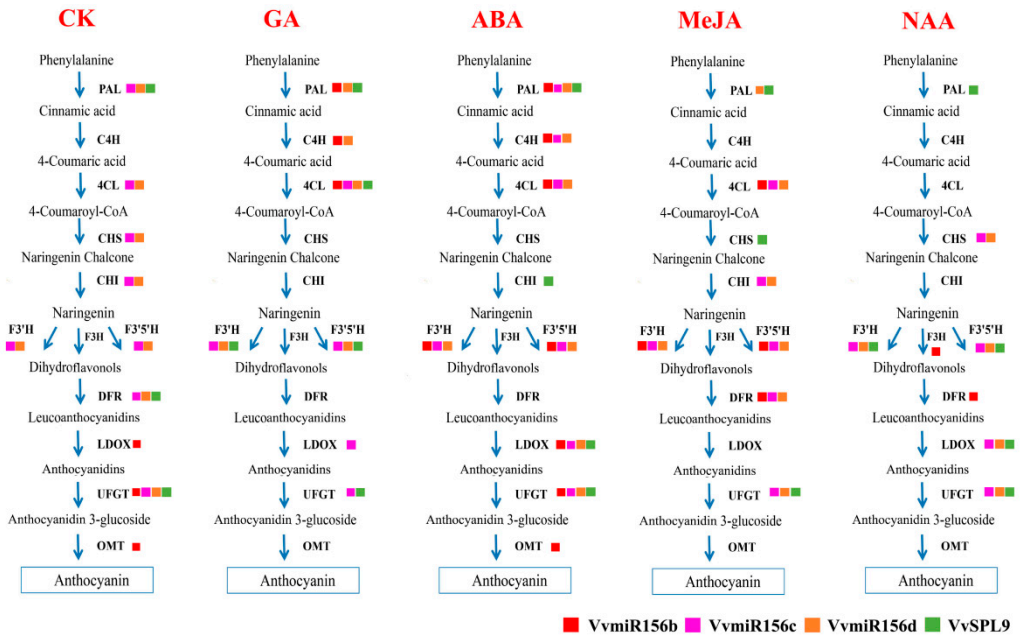

Figure S3 The correlation analysis of VvmiR156b/c/d-*VvSPL9* and anthocyanin synthesis-related genes in response to hormone signal. The red, purple and orange boxes represent the positive correlation of VvmiR156b/c/d, and the green box represents the negative correlation of *VvSPL9*. The larger the box, the stronger the correlation.