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Supplementary Material

Sugar profile of kernels as a marker of origin and ripening time of peach (*Prunus persicae* L.)

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Content

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Table S1. Estimated limit of detection (LOD), limit of quantification (LOQ) and recovery of the sugars and sugar alcohols analyzed by HPAEC

Sugar compound	Retention time (min)	LOD (ng/mL)	LOQ (ng/mL)	Recovery (%)
Sorbitol	2.737	0.189	0.567	102
Galactitol	3.083	0.239	0.719	93
Mannitol	3.245	0.253	0.759	109
Trehalose	3.596	0.108	0.325	95
Rhamnose	4.854	0.116	0.348	101
Arabinose	5.351	0.193	0.579	98
Glucose	6.153	0.056	0.168	103
Fructose	7.273	0.078	0.238	104
Ribose	8.184	0.294	0.882	107
Melibiose	8.956	0.129	0.387	99
iso-Maltose	9.753	0.099	0.297	101
Sucrose	10.425	0.085	0.255	99
Gentiobiose with Turanose	14.456	0.113	0.339	97
Melezitose	14.852	0.126	0.378	94
iso-Maltotriose	15.526	0.144	0.432	103
Maltose	17.125	0.099	0.297	101
Panose	17.923	0.083	0.249	96
Maltotriose	23.386	0.154	0.462	105
Maltotetraose	24.141	0.214	0.642	108
Maltopentaose	24.526	0.096	0.288	109
Maltohexaose	24.849	0.147	0.441	102
Maltoheptaose	25.029	0.201	0.603	106

Table S2. Parameters of descriptive statistics of carbohydrates' content (µg/g) in standard cultivars, promising hybrids and vineyard peach accessions.

		Ara	Fru	Glu	Rham	Rib	Gen with Tur	Malt	Suc	Tre	Isomaltotri	Maltotri	Melez	Pan	Maltotetr	Maltopen	Maltohex	Maltohep	Gal	Mann	Sor
Standard cultivars	Mean	0.089	0.963	5.045	0.018	1.091	0.032	0.569	4.554	0.244	0.028	0.009	0.112	0.067	0.020	0.017	0.018	0.024	0.075	0.065	0.440
	Median	0.039	0.382	3.986	0.014	0.185	0.017	0.023	1.975	0.091	0.020	0.009	0.074	0.082	0.008	0.016	0.006	0.009	0.058	0.012	0.053
	St dev	0.121	1.433	4.245	0.019	2.273	0.039	1.050	5.438	0.299	0.028	0.005	0.112	0.056	0.024	0.010	0.036	0.030	0.090	0.110	0.751
	Min	0.003	0.034	0.417	0.001	0.009	0.002	0.004	0.420	0.001	0.0001	0.002	0.003	0.001	0.004	0.002	0.0004	0.0003	0.0001	0.0003	0.003
	Max	0.383	4.526	12.714	0.073	7.100	0.131	3.238	16.236	0.852	0.098	0.019	0.370	0.184	0.077	0.030	0.125	0.084	0.322	0.352	2.306
Promising hybrids	Mean	0.012	3.070	5.468	0.013	0.138	0.190	2.923	8.294	0.007	0.174	0.040	0.017	0.138	0.063	0.043	0.007	0.030	0.104	0.042	1.169
	Median	0.005	2.523	5.993	0.007	0.079	0.164	2.293	6.559	0.007	0.111	0.022	0.009	0.110	0.004	0.054	0.005	0.011	0.045	0.037	1.255
	St dev	0.017	2.767	2.769	0.018	0.132	0.165	2.405	4.539	0.005	0.179	0.041	0.021	0.120	0.095	0.034	0.004	0.048	0.160	0.034	0.165
	Min	0.003	0.598	1.185	0.002	0.057	0.005	0.757	3.935	0.002	0.032	0.005	0.001	0.002	0.002	0.001	0.003	0.003	0.010	0.003	0.936
	Max	0.045	8.355	9.186	0.048	0.395	0.458	6.942	14.852	0.013	0.526	0.098	0.056	0.357	0.212	0.085	0.012	0.125	0.426	0.085	1.321
Vineyard peach accessions	Mean	0.006	1.646	5.009	0.003	0.055	0.089	1.034	7.299	0.078	0.066	0.048	0.048	0.097	0.026	0.041	0.039	0.010	0.009	0.023	1.506
	Median	0.005	1.037	4.666	0.002	0.037	0.014	0.392	7.575	0.014	0.046	0.033	0.024	0.110	0.013	0.022	0.027	0.007	0.008	0.009	1.025
	St dev	0.005	1.539	2.363	0.003	0.051	0.145	1.061	1.602	0.115	0.068	0.044	0.057	0.089	0.033	0.040	0.044	0.011	0.007	0.033	0.847
	Min	0.001	0.186	2.058	0.001	0.002	0.003	0.210	3.696	0.003	0.003	0.008	0.001	0.001	0.0004	0.002	0.0005	0.002	0.0005	0.002	0.876
	Max	0.016	4.272	8.750	0.010	0.157	0.365	2.764	9.133	0.272	0.199	0.135	0.159	0.252	0.101	0.099	0.110	0.036	0.021	0.098	2.999

Table S3. Parameters of descriptive statistics of carbohydrates' content (µg/g) in peach cultivars with early and late ripening time.

		Ara	Fru	Glu	Rham	Rib	Gen with Tur	Malt	Suc	Tre	Isomaltotri	Maltotri	Melez	Pan	Maltotetr	Maltopen	Maltohex	Maltohep	Gal	Mann	Sor
Cultivars with early ripening time	Mean	0.106	0.557	4.798	0.021	1.494	0.036	0.158	2.567	0.229	0.023	0.010	0.072	0.081	0.015	0.019	0.008	0.026	0.087	0.044	0.171
	Median	0.038	0.337	4.217	0.015	0.220	0.017	0.023	1.761	0.146	0.019	0.010	0.073	0.086	0.008	0.016	0.004	0.009	0.063	0.012	0.049
	St dev	0.139	0.869	3.748	0.022	2.588	0.042	0.343	2.419	0.241	0.017	0.005	0.023	0.056	0.016	0.010	0.009	0.035	0.098	0.064	0.366
	Min	0.004	0.034	0.490	0.004	0.009	0.005	0.010	1.071	0.056	0.002	0.002	0.028	0.002	0.005	0.002	0.0004	0.0003	0.005	0.004	0.003
	Max	0.383	2.675	10.853	0.073	7.100	0.131	1.003	8.363	0.777	0.052	0.019	0.098	0.184	0.053	0.030	0.025	0.084	0.322	0.190	1.075
Cultivars with late ripening time	Mean	0.015	2.219	5.294	0.008	0.078	0.113	1.812	8.100	0.089	0.100	0.038	0.068	0.100	0.041	0.037	0.028	0.018	0.049	0.047	1.325
	Median	0.005	1.442	5.558	0.003	0.057	0.018	1.329	7.365	0.010	0.066	0.026	0.009	0.095	0.012	0.023	0.010	0.008	0.010	0.013	1.133
	St dev	0.022	2.126	3.151	0.012	0.094	0.148	1.843	4.142	0.214	0.125	0.040	0.108	0.098	0.061	0.034	0.042	0.030	0.103	0.085	0.718
	Min	0.001	0.037	0.417	0.001	0.002	0.002	0.004	0.420	0.001	0.0001	0.002	0.001	0.001	0.0004	0.001	0.0005	0.001	0.0001	0.0003	0.030
	Max	0.074	8.355	12.714	0.048	0.395	0.458	6.942	16.236	0.852	0.526	0.135	0.370	0.357	0.212	0.099	0.125	0.125	0.426	0.352	2.999

Table S4. Kruskal-Wallis test applied on results of cultivars from diverse peach germplasm, and Mann-Whitney U-test applied on results of cultivars with different ripening time

	Kruskal-Wallis test			Mann-Whitney U-test	
	Chi square	**P**	***z*-value[a]**	**P**	**H_0**
Ara	9.29	0.0096	S(V)	0.0104	Reject
Fru	6.53	0.0381	S(H)	0.0062	Reject
Glu	0.26	0.8779	-	0.6834	Accept
Rhamn	8.88	0.0118	S(V)	0.0062	Reject
Rib	2.85	0.2400	-	0.0122	Reject
Gen withTur	4.43	0.1090	S(H)	0.6001	Accept
Malt	9.14	0.0104	S(H)	0.0020	Reject
Suc	4.80	0.0909	-	0.0043	Reject
Tre	6.77	0.0338	S(H)	0.0052	Reject
Isomaltotri	8.78	0.0124	S(H)	0.0231	Reject
Maltotri	9.53	0.0085	S(V)	0.0795	Accept
Melez	7.08	0.0290	S(H)	0.0709	Accept
Pan	2.55	0.2799	-	0.6834	Accept
Maltotetr	0.65	0.7243	-	0.8612	Accept
Maltopen	1.34	0.5109	-	0.4845	Accept
Maltohex	2.59	0.2740	-	0.1708	Accept
Maltohep	0.71	0.7004	-	0.8157	Accept
Gal	7.90	0.0193	V(S,H)	0.0545	Accept
Mann	1.66	0.4366	-	0.6833	Accept
Sor	7.80	0.0202	S(V,H)	0.0014	Reject

[a] *z*-value - Standardized normal variable

Regular Test: Medians significantly different if *z*-value > 1.9600

Table S5. Sweetness index (SI) of peach kernel samples

Standard cultivars		**Promising hybrids**		**Vineyard peach accessions**	
No.	**SI**	**No.**	**SI**	**No.**	**SI**
1	14.09	**12**	31.98	**18**	19.12
2	9.48	**13**	26.49	**19**	13.00
3	8.26	**14**	30.96	**20**	20.50
4	6.86	**15**	15.97	**21**	16.08
5	28.30	**16**	19.55	**22**	15.45
6	3.64	**17**	17.39	**23**	23.09
7	3.72			**24**	24.64
8	2.01			**25**	17.30
9	45.04				
10	1.07				
11	25.02				
Mean	13.40	Mean	23.72	Mean	18.64
Stdev	13.83	Stdev	7.01	Stdev	3.96