



Flavor and Functional Analysis of *Lactobacillus plantarum* Fermented Apricot Juice

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Supplementary Tables

Table S1 Physicochemical properties in fermented apricot juice

Fermentation times (h)	pH	Titratable acid (g/100 mL)	Soluble solids content (°Brix)	Viable cell counts ($\times 10^7$ CFU/mL)	Total phenolic content (mg/L)	Total flavonoids content (mg/L)
0	3.74±0.09 ^d	3.92±0.02 ^e	13.51±0.03 ^a	7.52±0.05 ^e	76.66±0.78 ^b	42.56±1.06 ^{bc}
2	3.77±0.04 ^d	4.03±0.13 ^e	13.42±0.02 ^a	8.08±0.08 ^d	69.61±0.89 ^d	40.58±0.87 ^c
4	3.84±0.05 ^{bc}	4.20±0.16 ^{de}	13.23±0.04 ^b	8.86±0.09 ^c	69.84±0.84 ^d	37.63±0.51 ^d
6	4.01±0.04 ^a	4.46±0.10 ^{cd}	13.12±0.02 ^b	9.77±0.07 ^b	72.55±1.14 ^c	41.67±0.97 ^c
8	4.08±0.07 ^a	4.74±0.16 ^{bc}	13.01±0.03 ^c	10.59±0.06 ^a	73.52±0.58 ^c	49.25±0.82 ^a
10	4.01±0.10 ^a	4.97±0.15 ^{ab}	12.82±0.02 ^d	10.72±0.06 ^a	74.32±1.17 ^c	42.63±1.28 ^{bc}
12	3.96±0.09 ^{ab}	5.09±0.23 ^a	12.56±0.03 ^e	10.76±0.05 ^a	82.48±0.73 ^a	44.04±0.80 ^b

Data are expressed as the mean ± standard deviation from replicate analyses (n=3) of three replicate samples. The different lowercase letters in each row indicate significant differences between samples (P < 0.05).

Table S2 Content of the aroma components in the apricot juice samples

Compounds	RI	Concentrations (μg/L)						
		S0	S2	S4	S6	S8	S10	S12
Alcohols								
Terpinen-4-ol	1602	-	-	-	9.80±0.16 ^c	18.33±0.30 ^a	12.16±0.20 ^b	
1-Nonanol	1640	13.18±1.08 ^a	-	-	-	-	-	-
α-Terpineol	1690	876.46±35.78 ^a	623.00±15.26 ^b	437.85±7.15 ^e	560.04±13.72 ^c	481.93±11.81 ^d	530.77±13.00 ^c	567.54±9.27 ^c
Nerol	1797	31.47±1.54 ^d	40.00±1.96 ^c	48.53±1.19 ^b	51.66±1.69 ^b	60.05±1.96 ^a	49.28±1.61 ^b	48.94±1.20 ^b
Styrax alcohol	1801	-	-	-	1.18±0.09 ^b	1.35±0.09 ^a	1.36±0.08 ^a	-
Geraniol	1847	-	-	83.53±2.73 ^d	96.71±3.95 ^c	105.86±4.32 ^b	114.24±4.66 ^a	-
α-Violet alcohol	1895	13.40±0.44 ^a	9.42±0.61 ^b	4.65±0.19 ^d	7.79±0.38 ^c	7.60±0.38 ^c	8.48±0.42 ^c	8.23±0.27 ^c
dihydro-β-ionol	1951	4.00±0.33 ^c	7.75±0.32 ^b	8.00±0.41 ^b	8.27±0.68 ^b	7.62±0.50 ^b	11.23±0.55 ^a	11.53±0.57 ^a
Aldehydes								
Glutaraldehyde	979	-	-	-	-	-	-	122.17±6.98 ^a
2,4-Heptadiene aldehyde	1150		2.27±0.09 ^a	2.97±0.24 ^d	4.76±0.20 ^b	5.23±0.13 ^a	4.46±0.07 ^c	-
Furfural	1451	107.00±1.75 ^a	-	-	-	-	-	-
Cyclamen aldehyde	1466	-	2.60±0.11 ^a	2.43±0.06 ^b	1.72±0.03 ^d	-	1.92±0.07 ^c	1.50±0.08 ^e
Decanal	1498	-	3.21±0.02 ^a	2.51±0.12 ^b	-	-	-	-
Benzaldehyde	1520	36.29±1.48 ^e	37.75±1.23 ^e	39.30±0.65 ^{de}	42.66±2.09 ^d	87.30±2.85 ^a	63.75±1.56 ^b	50.27±3.28 ^c
3,4-Dimethylbenzaldehyde	1790	12.68±0.31 ^e	15.84±0.39 ^d	17.51±0.57 ^{cd}	18.09±1.04 ^b	21.66±0.88 ^b	27.05±1.10 ^a	18.47±1.21 ^c
Acids								
Acetic acid	1449	-	-	19.12±0.78 ^d	41.14±2.69 ^c	72.64±4.15 ^b	90.13±4.42 ^a	-
Hexanoic acid	1846	18.37±1.35 ^a	15.70±0.51 ^b	15.14±0.74 ^b	13.39±0.99 ^c	10.44±0.77 ^d	10.39±0.60 ^d	-
Octoic acid	2060	10.41±0.08 ^a	7.64±0.31 ^b	7.41±0.36 ^b	6.35±0.52 ^c	6.33±0.51 ^c	5.31±0.34 ^d	3.20±0.08 ^e
Benzoic acid	2412	-	-	5.44±0.31 ^c	5.56±0.05 ^c	6.36±0.11 ^b	7.27±0.53 ^a	-
Ketones								
3-Hydroxy-2-butanone	1284	-	-	0.25±0.02 ^d	4.18±0.03 ^c	6.93±0.11 ^b	9.66±0.79 ^a	3.65±0.04 ^c
Methyl heptanone	1338	5.98±0.39 ^a	2.48±0.16 ^b	2.00±0.12 ^c	-	-	-	-

2-Nonanone	1390	-	-	-	5.83±0.10 ^d	12.83±0.42 ^c	16.80±0.14 ^b	25.41±0.20 ^a
α-Ionone	1627	2.65±0.13 ^b	2.72±0.13 ^b	3.02±0.12 ^a	-	-	-	-
2-Undecanone	1598	-	24.34±0.60 ^c	20.29±1.16 ^d	18.73±0.61 ^e	31.66±1.29 ^b	38.37±0.63 ^b	52.43±0.86 ^a
Dehydrodihydroionone	1786	-	-	-	5.09±0.16 ^d	11.33±0.56 ^a	7.56±0.19 ^b	5.61±0.14 ^c
β-dihydroionone	1842	13.18±0.43 ^d	18.01±0.44 ^c	16.57±1.22 ^c	16.46±0.81 ^c	17.65±1.15 ^c	22.71±0.93 ^a	20.29±0.66 ^b
β-Ionone	1940	10.74±0.35 ^a	8.84±0.29 ^b	5.84±0.33 ^e	6.93±0.45 ^{cd}	6.98±0.29 ^{cd}	7.55±0.43 ^c	6.23±0.16 ^{de}
Terpenes								
2-Pinene	1028	-	-	-	-	14.14±0.34 ^c	23.06±0.38 ^b	35.40±2.02 ^a
D-Limonene	1030	34.23±0.84 ^d	36.99±0.60 ^d	77.25±1.89 ^c	82.43±0.67 ^c	98.29±4.01 ^b	100.80±0.82 ^b	110.65±5.42 ^a
Camphene	1071	23.43±0.38 ^a	-	-	-	-	1.07±0.05 ^b	-
β-Pinene	1112	17.04±1.11 ^f	27.53±0.90 ^e	32.81±0.27 ^e	51.80±3.38 ^d	140.21±2.29 ^a	123.25±8.05 ^b	110.45±4.51 ^c
3-Carene	1147	80.35±3.94 ^a	68.41±0.56 ^b	60.95±1.99 ^c	31.74±0.51 ^d	26.06±0.85 ^e	9.20±0.23 ^f	7.35±0.48 ^f
β-Myrcene	1161	175.52±12.90 ^a	120.27±4.91 ^b	47.21±0.77 ^c	20.53±1.67 ^d	10.48±0.34 ^{de}	6.89±0.56 ^e	3.53±0.07 ^e
α-phellandrene	1167	0.48±0.01 ^f	2.53±0.16 ^e	5.73±0.47 ^d	9.18±0.52 ^b	21.24±1.56 ^a	7.58±0.37 ^c	-
β-ocimene	1250	146.89±3.60 ^a	106.54±7.83 ^b	68.33±8.37 ^c	58.75±1.92 ^c	33.00±1.35 ^d	26.56±0.87 ^d	24.56±1.40 ^d
Trans-allo-ocimene	1375	-	23.96±0.39 ^a	21.66±0.88 ^b	17.48±1.00 ^d	16.46±0.81 ^d	19.89±0.81 ^c	-
Terpinene	1392	-	-	-	9.27±0.68 ^a	7.53±0.19 ^b	4.74±0.35 ^c	-
Linalool	1547	1716.45±14.0	1332.10±54.3	1088.58±8.89	1050.22±8.57	1091.47±8.91	1234.48±10.0	1262.41±10.3
Esters		1 ^a	8 ^b	d	d	d	8 ^c	0 ^c
Octyl formate	1114	12.53±0.61 ^a	6.18±0.40 ^b	-	-	-	-	-
Linalyl formate	1570	-	5.47±0.13 ^a	0.78±0.04 ^b	-	-	-	-
Linalyl butyrate	1689	-	-	-	-	5.27±0.04 ^c	7.75±0.44 ^b	9.71±0.24 ^a
Methyl salicylate	1765	-	2.93±0.12 ^f	3.28±0.24 ^{de}	3.69±0.24 ^{cd}	4.33±0.06 ^b	5.89±0.33 ^a	3.91±0.29 ^{bc}
Butyrolactone	1798	-	5.30±0.17 ^a	5.26±0.34 ^a	-	-	-	-
γ-Decanolactone	2138	14.57±0.47 ^a	8.57±0.7 ^c	5.10±0.21 ^e	6.74±0.44 ^d	7.38±0.54 ^d	6.95±0.29 ^d	12.41±0.60 ^b
Others								
2,5-Dimethylfuran	939	-	-	-	77.34±1.89 ^b	88.30±1.45 ^a	84.13±6.87 ^a	-
M-xylene	1143	5.03±0.37 ^e	9.17±0.30 ^d	9.98±0.57 ^d	12.88±0.21 ^c	24.02±1.96 ^a	11.10±0.73 ^{cd}	20.35±1.00 ^b
2-Amylfuran	1231	16.43±0.54 ^a	13.77±0.90 ^b	17.28±0.85 ^a	-	-	-	-
4-Methylthiazole	1283	-	-	-	37.66±0.92 ^a	26.43±0.21 ^b	8.75±0.65 ^c	-
Theaspirane	1526	-	12.91±0.84 ^c	15.65±1.15 ^b	7.92±0.26 ^e	10.43±0.25 ^d	12.81±0.11 ^c	23.20±1.13 ^a
Eugenol	2169	-	2.37±0.04 ^d	3.37±0.16 ^d	4.90±0.04 ^c	7.07±0.40 ^b	10.30±0.42 ^a	6.94±0.51 ^b

Data are expressed as the mean ± standard deviation from replicate analyses (n=3) of three replicate samples. The different lowercase letters in each row indicate significant differences between samples (P < 0.05). The symbol “-” means not found.

Supplementary Figures

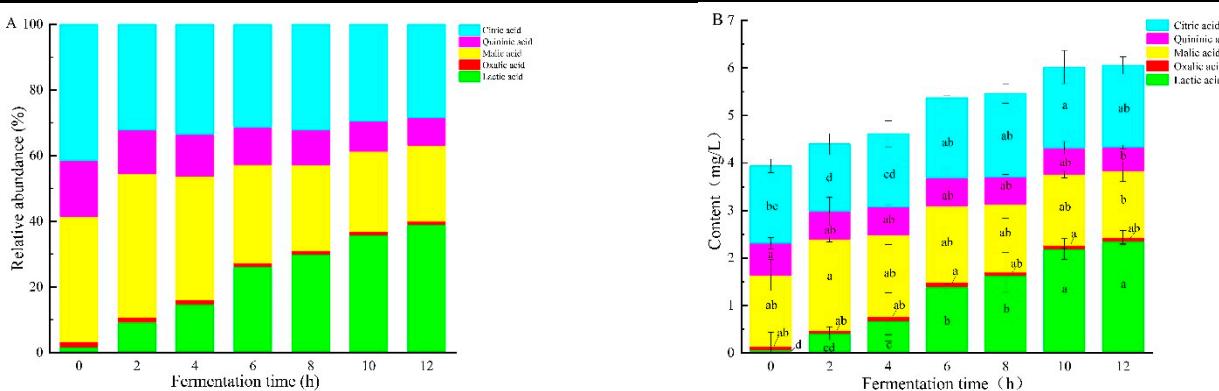


Figure S1. A: Composition of organic acids in apricot juice at different fermentation stages. B: Content of organic acids in apricot juice at different fermentation stages. Different lowercase letters indicate significant differences between samples at different fermentation stages ($P < 0.05$). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

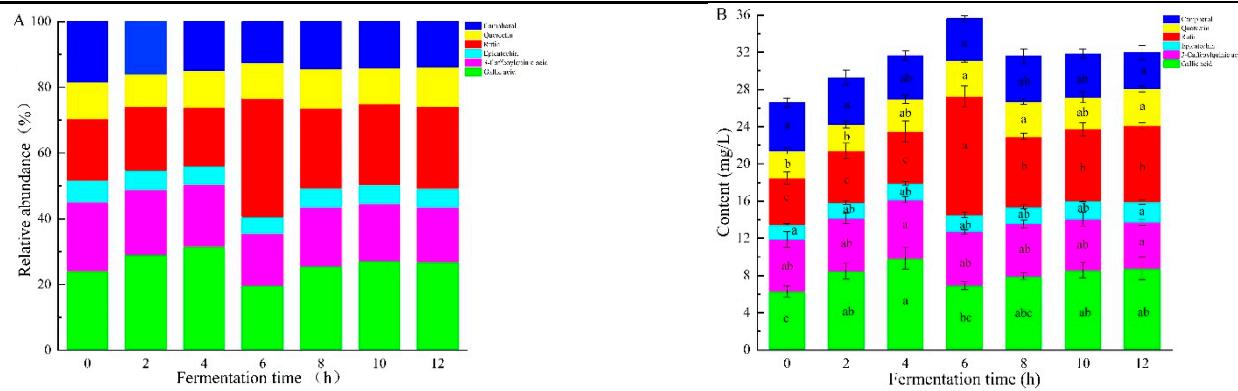


Figure S2. A: Composition of phenolic compounds in apricot juice at different fermentation stages. B: Content of phenolic compounds in apricot juice at different fermentation stages. Different lowercase letters indicate significant differences between samples at different fermentation stages ($P < 0.05$). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

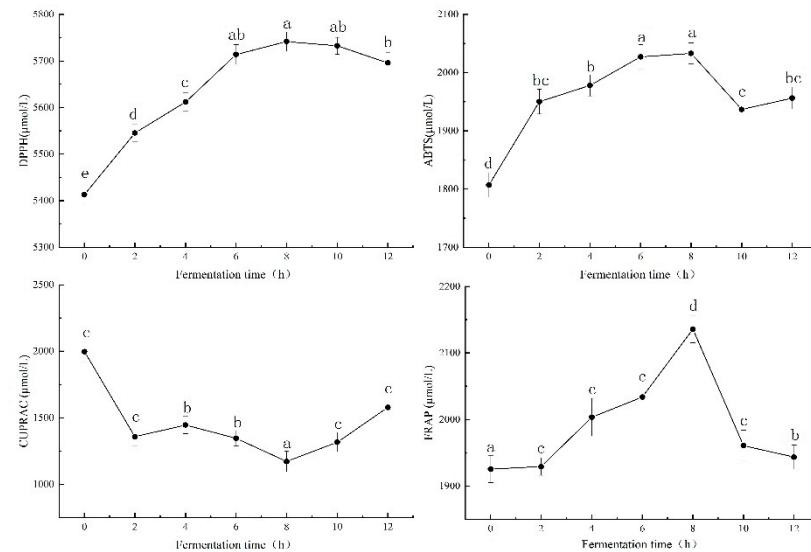


Figure S3. In vitro antioxidant activity in fermented apricot juice. Different lowercase letters indicate significant differences between samples at different fermentation stages ($P < 0.05$).

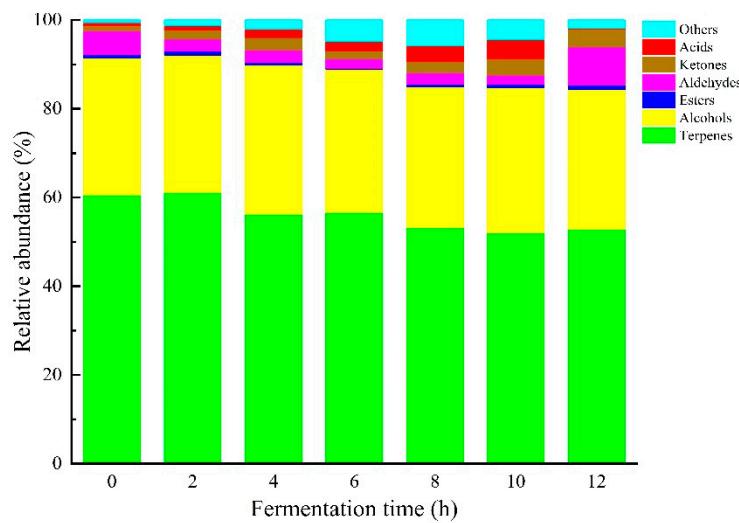


Figure S4. Composition and classification of volatile compounds in apricot juice at different fermentation stages. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

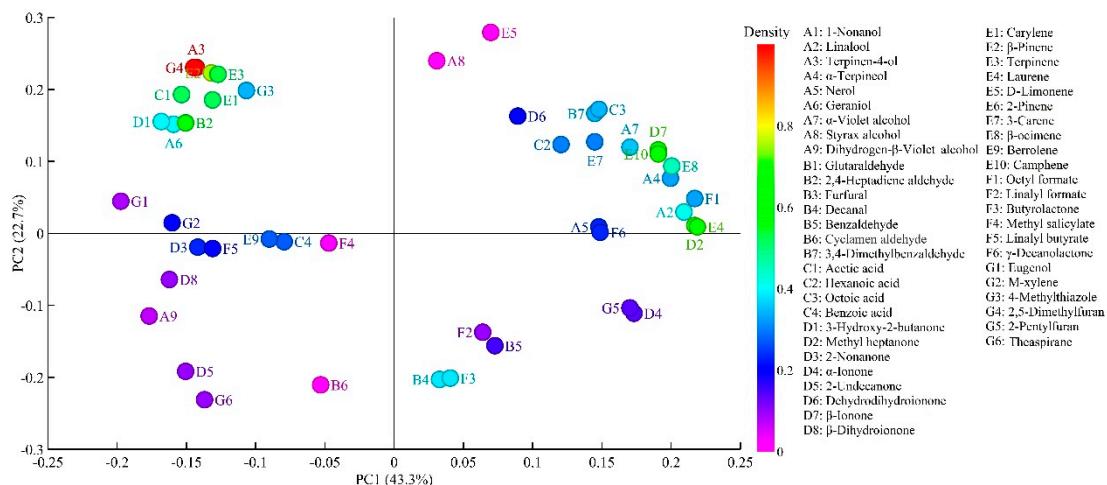


Figure S5. Load diagram of volatile compounds formation in seven fermentation periods of apricot juice. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

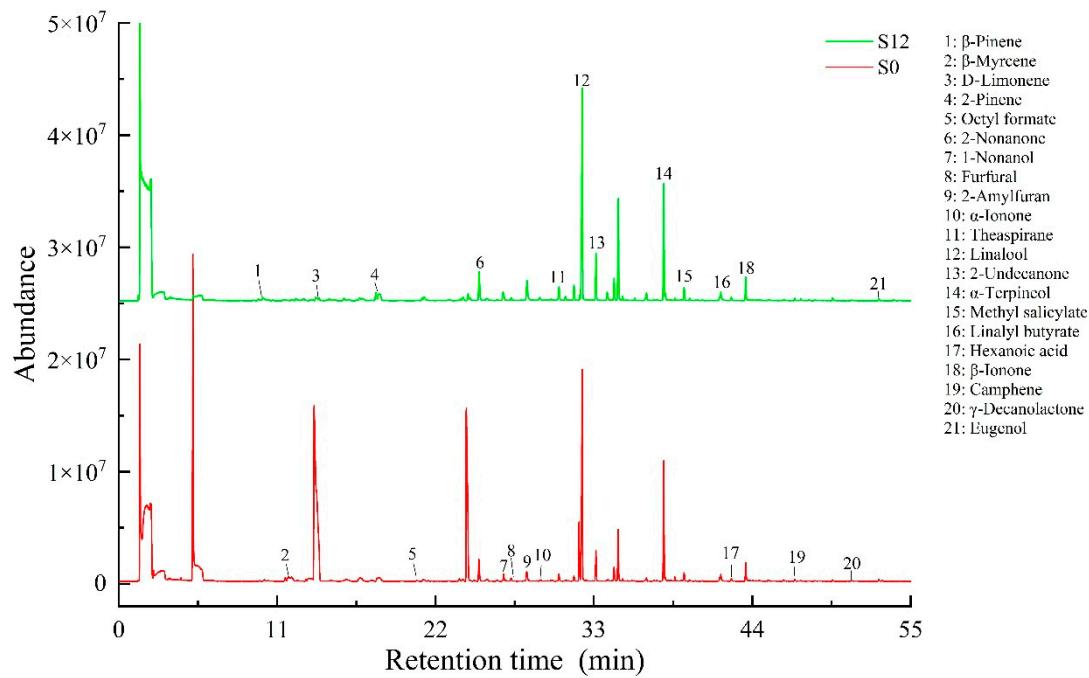


Figure S6. Aroma-active substances and their flavor attributes detected by GC-MS in juice before and after fermentation. S0 represents raw juices (0 h), S12 represents fermented juices (12 h). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

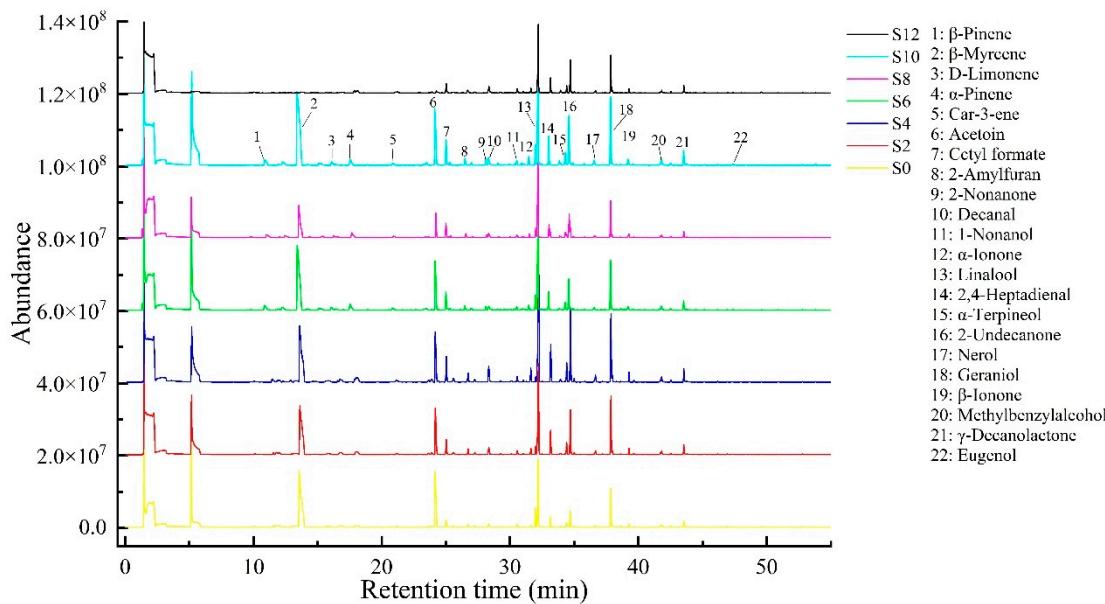


Figure S7. Overlay of the main chromatograms of the apricot juice in seven fermentation periods. S0 represents fermentation 0 h, S2 represents fermentation 2 h, S4 represents fermentation 4 h, S6 represents fermentation 6 h, S8 represents fermentation 8 h, S10 represents fermentation 10 h, S12 represents fermentation 12 h. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.).

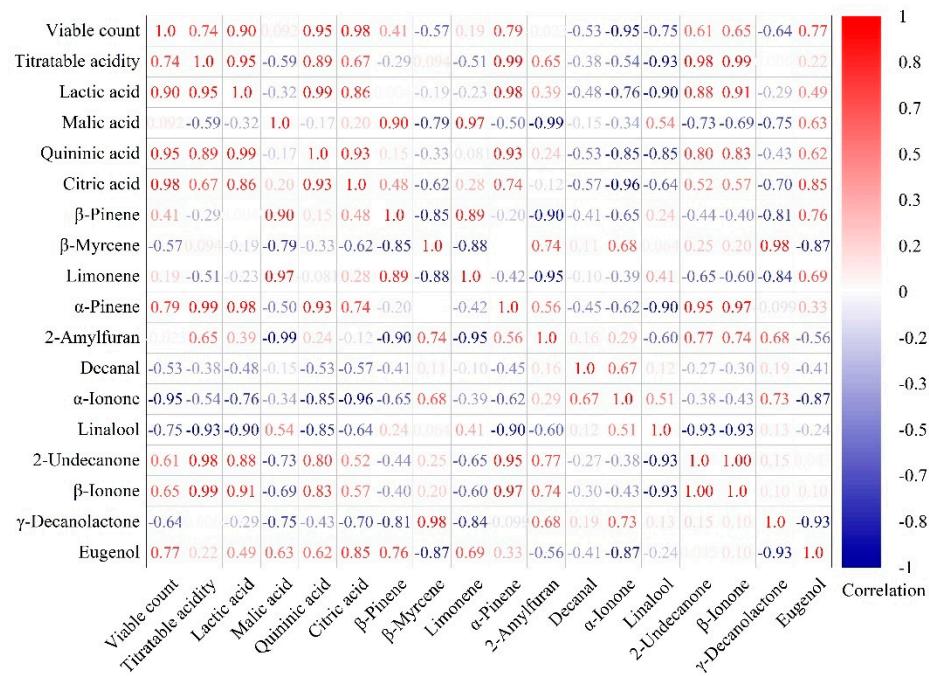


Figure S8. Heat map of Pearson correlation coefficient for variables. The correlations among fermentation time, viable count in juice, total acid and the organic acid contents, and aroma-active compounds are shown. The larger the positive number, the stronger the positive correlation, and the opposite for negative correlation.