

Table S1. Retention index (RI) and source of the identified free volatile compounds

RI <sup>A</sup>	Source	Compound
1080	Fluka	Ethyl butanoate
1082	Sigma-Aldrich	Ethyl isovalerate
1145	Sigma-Aldrich	Isoamyl acetate
1155	Sigma-Aldrich	1-butanol
1185	Fluka	Ethyl hexanoate
1214	Sigma-Aldrich	Isobutanol
1226	Sigma-Aldrich	2-hexanol
1256	Sigma-Aldrich	1-pentanol
1282	Fluka	1-hexanol
1286	Sigma-Aldrich	( <i>E</i> )-3-hexen-1-ol
1294	Sigma-Aldrich	Hexyl acetate
1296	Sigma-Aldrich	( <i>Z</i> )-3-hexen-1-ol
1298	Sigma-Aldrich	Ethyl <i>cis</i> -3-hexanoate
1300	Sigma-Aldrich	( <i>E</i> )-2-hexen-1-ol
1322	Sigma-Aldrich	2-methyl-2-buten-1-ol
1348	Sigma-Aldrich	Ethyl 2-hexanoate
1394	Sigma-Aldrich	2-ethyl-1-hexanol
1432	Tentatively identified	<i>Cis</i> -linalool oxide furanic
1436	Sigma-Aldrich	Ethyl octanoate
1456	Sigma-Aldrich	1-octen-3-ol
1503	Sigma-Aldrich	Benzaldehyde
1529	Fluka	Linalool
1545	Fluka	2,3-Butanediol ( <i>levo</i> )
1585	Fluka	2,3-Butanediol ( <i>meso</i> )
1594	Fluka	1-octanol
1600	Fluka	Butyric acid
1614	Sigma-Aldrich	Methyl decanoate
1622	Sigma-Aldrich	$\beta$ -terpineol acetate
1655	Fluka	Ethyl decanoate
1679	Fluka	$\alpha$ -terpineol
1685	Tentatively identified	TDN (Trimethyl dihydronaphthalene)

1703	Sigma-Aldrich	Ethyl 9-decanoate
1725	Sigma-Aldrich	3-metiltio-1-propanol
1740	Sigma-Aldrich	Nerol
1748	Fluka	1-decanol
1755	Fluka	$\beta$ -citronellol
1801	Firmenick	$\beta$ -damascenone
1816	Fluka	Hexanoic acid
1831	Fluka	Geraniol
1892	Fluka	2-phenylethanol
1895	Sigma-Aldrich	Benzyl alcohol
1936	Fluka	2-phenethyl acetate
1953	Tentatively identified	Oak lactone
1967	Sigma-Aldrich	( <i>E</i> )-3-hexenoic acid
1969	Sigma-Aldrich	( <i>E</i> )-2-hexenoic acid
1971	Sigma-Aldrich	Phenol
2024	Fluka	Octanoic acid
2180	Fluka	3,7-dimethyl-1,7-octadienol (Hydroxycitronellol)
2216	Tentatively identified	$\gamma$ -heptalactone
2225	Sigma-Aldrich	Syringol
2289	Sigma-Aldrich	Decanoic acid
2351	Sigma-Aldrich	2,3-dihydro-benzofurane
2378	Sigma-Aldrich	Benzoic acid
2503	Sigma-Aldrich	Dodecanoic acid
2521	Sigma-Aldrich	Benceneacetic acid
2936	Sigma-Aldrich	Zingerone
3099	Sigma-Aldrich	Homovanillic acid

<sup>a</sup> Linear retention index on a DB-wax capillary column

Table S2. Mean concentration ( $\mu\text{g/L}$ ) and relative standard deviation ( $n=2$ ) of free volatile compounds identified in aromatic distillate (AD), control dealcoholized wine (CW), and dealcoholized wines added with aromatic distillate in concentration of 0.5 (AW1), 1 (AW2) and 1.5 (AW3) % v/v.

Compound	AD	RSD%	CW	RSD %	AW1	RSD %	AW2	RSD%	AW3	RSD%
2-hexanol	83.479	$\pm 9.961$	n.d.		n.d.		n.d.		n.d.	
1-hexanol	3340.471	$\pm 2.427$	96.591 <sup>a</sup>	$\pm 0.299$	1419.895 <sup>b</sup>	$\pm 3.691$	2865.557 <sup>c</sup>	$\pm 1.130$	3663.377 <sup>d</sup>	$\pm 1.436$
(E)-3-hexen-1-ol	63.005	$\pm 4.963$	n.d.		33.941 <sup>a</sup>	$\pm 7.076$	65.633 <sup>b</sup>	$\pm 2.582$	82.865 <sup>c</sup>	$\pm 1.280$
(Z)-3-hexen-1-ol	634.884	$\pm 1.431$	22.710 <sup>a</sup>	$\pm 1.588$	269.895 <sup>b</sup>	$\pm 2.739$	490.434 <sup>c</sup>	$\pm 7.245$	521.262 <sup>c</sup>	$\pm 1.591$
(E)-2-hexen-1-ol	10.751	$\pm 5.190$	n.d.		n.d.		5.516 <sup>a</sup>	$\pm 3.861$	6.696 <sup>b</sup>	$\pm 9.926$
2-ethyl-1-hexanol	15.599	$\pm 2.516$	5.256 <sup>a</sup>	$\pm 2.067$	8.057 <sup>b</sup>	$\pm 1.324$	9.004 <sup>b</sup>	$\pm 8.862$	13.274 <sup>c</sup>	$\pm 4.444$
<b>C<sub>6</sub> COMPOUNDS</b>	<b>4148.188</b>		<b>124.557<sup>a</sup></b>		<b>1731.788<sup>b</sup></b>		<b>3436.144<sup>c</sup></b>		<b>4287.474<sup>d</sup></b>	
Cis-linalool oxyde furanic	35.784	$\pm 1.435$	n.d.		n.d.		11.457 <sup>a</sup>	$\pm 3.321$	22.478 <sup>b</sup>	$\pm 0.252$
L inalool	70.449	$\pm 3.859$	n.d.		5.251 <sup>a</sup>	$\pm 0.565$	10.120 <sup>b</sup>	$\pm 1.697$	16.205 <sup>c</sup>	$\pm 2.418$
$\beta$ -terpineol acetate	8.852	$\pm 9.593$	n.d.		n.d.		n.d.		n.d.	
$\alpha$ -terpineol	46.788	$\pm 1.410$	22.756 <sup>a</sup>	$\pm 2.913$	25.170 <sup>a</sup>	$\pm 0.801$	35.056 <sup>b</sup>	$\pm 3.935$	39.847 <sup>c</sup>	$\pm 3.501$
TDN (Trimethyl dihydronaphtalene)	58.472	$\pm 1.909$	n.d.		n.d.		8.258 <sup>a</sup>	$\pm 4.401$	11.773 <sup>b</sup>	$\pm 0.329$
Nerol	12.467	$\pm 2.512$	n.d.		n.d.		n.d.		n.d.	
$\beta$ -citronellol	32.967	$\pm 0.922$	n.d.		8.572 <sup>a</sup>	$\pm 1.752$	9.759 <sup>a</sup>	$\pm 4.896$	12.173 <sup>b</sup>	$\pm 1.409$
$\beta$ -damascenone	56.736	$\pm 1.022$	43.097 <sup>a</sup>	$\pm 1.468$	45.905 <sup>b</sup>	$\pm 0.841$	49.915 <sup>c</sup>	$\pm 0.570$	48.007 <sup>d</sup>	$\pm 0.229$
Geraniol	38.249	$\pm 0.500$	n.d.		n.d.		n.d.		33.931 <sup>a</sup>	$\pm 0.024$
3,7-dimethyl-1,7-octadienol (Hydroxycitronellol)	50.709	$\pm 3.002$	22.423 <sup>a</sup>	$\pm 2.965$	24.794 <sup>a</sup>	$\pm 7.103$	27.136 <sup>b</sup>	$\pm 0.223$	30.363 <sup>c</sup>	$\pm 6.484$
<b>TERPENIC COMPOUNDS</b>	<b>360.764</b>		<b>88.276<sup>a</sup></b>		<b>106.692<sup>b</sup></b>		<b>151.701<sup>c</sup></b>		<b>214.777<sup>d</sup></b>	
Benzaldehyde	25.807	$\pm 3.677$	6.589 <sup>a</sup>	$\pm 1.558$	9.549 <sup>b</sup>	$\pm 0.130$	9.861 <sup>b,c</sup>	$\pm 6.201$	10.704 <sup>c</sup>	$\pm 0.649$
Benzyl alcohol	66.140	$\pm 11.511$	25.613 <sup>a</sup>	$\pm 8.324$	38.647 <sup>b</sup>	$\pm 0.491$	43.185 <sup>c</sup>	$\pm 0.659$	47.668 <sup>d</sup>	$\pm 3.477$
Phenol	32.813	$\pm 2.735$	14.030 <sup>a</sup>	$\pm 9.473$	19.822 <sup>b</sup>	$\pm 7.431$	21.045 <sup>b</sup>	$\pm 3.775$	19.935 <sup>b</sup>	$\pm 2.076$
Syringol	48.109	$\pm 0.750$	8.497 <sup>a</sup>	$\pm 9.400$	29.588 <sup>b</sup>	$\pm 1.312$	34.159 <sup>b</sup>	$\pm 7.153$	32.783 <sup>b</sup>	$\pm 4.852$

Compound	AD	RSD%	CW	RSD %	AW1	RSD %	AW2	RSD%	AW3	RSD%
2,3-dihydro-benzofurane	403.425	± 0.774	162.402 <sup>a</sup>	± 5.252	258.971 <sup>b</sup>	± 4.011	345.143 <sup>c</sup>	± 4.500	341.567 <sup>c</sup>	± 2.417
Benzoic acid	96.622	± 0.574	64.303 <sup>a</sup>	± 9.656	68.397 <sup>a</sup>	± 4.465	80.615 <sup>b</sup>	± 9.387	88.008 <sup>c</sup>	± 1.724
Benceneacetic acid	77.407	± 1.978	28.173 <sup>a</sup>	± 5.486	32.973 <sup>b</sup>	± 2.878	69.191 <sup>c</sup>	± 1.765	63.241 <sup>d</sup>	± 1.913
Zingerone	78.487	± 0.849	51.222 <sup>a</sup>	± 6.449	50.160 <sup>a</sup>	± 7.440	63.617 <sup>b</sup>	± 0.959	60.567 <sup>b</sup>	± 3.328
Homovanillic acid	268.744	± 3.484	49.929 <sup>a</sup>	± 1.846	70.891 <sup>b</sup>	± 1.128	163.111 <sup>c</sup>	± 2.068	230.618 <sup>d</sup>	± 6.252
<b>BENCENIC COMPOUNDS</b>	<b>1097.553</b>		<b>410.759<sup>a</sup></b>		<b>578.998<sup>b</sup></b>		<b>829.927<sup>c</sup></b>		<b>895.092<sup>d</sup></b>	

\* *n.d.*: not detected; <sup>a,b,c,d</sup>: different superindex in the same row indicate significant differences at a 0.05 level according to Student-Newman Keuls statistical test ( $p \leq 0.05$ ) between CW, AW1, AW2 and AW3.

Table S3. Mean concentration ( $\mu\text{g/L}$ ) and relative standard deviation ( $n=2$ ) of volatile compounds formed during alcoholic fermentation identified in aromatic distillate (AD), control dealcoholized wine (CW), and dealcoholized wines added with aromatic distillate in concentration of 5 (AW1), 10 (AW2) and 15 (AW3) % v/v.

Compound	AD	RSD %	CW	DSR %	AW1	DSR %	AW2	DSR%	AW3	DSR%
<i>Trans</i> whiskey lactone	3.731	$\pm 6.312$	n.d.		n.d.		n.d.		2.009 <sup>a</sup>	$\pm 6.950$
$\gamma$ -heptalactone	20.700	$\pm 2.296$	7.341 <sup>a</sup>	$\pm 7.936$	9.773 <sup>b</sup>	$\pm 2.474$	13.062 <sup>c</sup>	$\pm 4.510$	15.868 <sup>d</sup>	$\pm 2.081$
<b>LACTONES</b>	<b>24.431</b>		<b>7.341<sup>a</sup></b>		<b>9.773<sup>b</sup></b>		<b>13.062<sup>c</sup></b>		<b>17.877<sup>d</sup></b>	
Butyric acid	44.448	$\pm 7.498$	48.434 <sup>a</sup>	$\pm 6.359$	50.861 <sup>a</sup>	$\pm 2.420$	64.853 <sup>b</sup>	$\pm 1.741$	68.197 <sup>b</sup>	$\pm 0.139$
Hexanoic acid	4035.640	$\pm 2.440$	1974.285 <sup>a</sup>	$\pm 1.907$	2599.015 <sup>b</sup>	$\pm 4.234$	3295.803 <sup>c</sup>	$\pm 2.747$	3250.039 <sup>c</sup>	$\pm 1.566$
( <i>E</i> )-3-hexenoic acid	40.696	$\pm 1.140$	27.630 <sup>a</sup>	$\pm 2.528$	35.305 <sup>b</sup>	$\pm 1.155$	35.435 <sup>b</sup>	$\pm 3.514$	37.679 <sup>b</sup>	$\pm 8.362$
( <i>E</i> )-2-hexenoic acid	48.205	$\pm 0.144$	18.768 <sup>a</sup>	$\pm 4.211$	31.135 <sup>b</sup>	$\pm 5.060$	32.892 <sup>b</sup>	$\pm 1.608$	28.387 <sup>b</sup>	$\pm 8.349$
Octanoic acid	11568.279	$\pm 2.827$	1816.719 <sup>a</sup>	$\pm 1.893$	3203.278 <sup>b</sup>	$\pm 4.182$	4700.923 <sup>c</sup>	$\pm 3.072$	4790.056 <sup>c</sup>	$\pm 1.549$
Decanoic acid	7853.262	$\pm 0.365$	155.473 <sup>a</sup>	$\pm 1.926$	905.443 <sup>b</sup>	$\pm 4.738$	1636.992 <sup>c</sup>	$\pm 2.100$	2108.729 <sup>d</sup>	$\pm 1.244$
Dodecanoic acid	784.322	$\pm 5.934$	n.d.		96.338 <sup>a</sup>	$\pm 3.541$	453.921 <sup>b</sup>	$\pm 0.694$	289.782 <sup>c</sup>	$\pm 8.770$
<b>ACIDS</b>	<b>24399.283</b>		<b>4048.649<sup>a</sup></b>		<b>6931.149<sup>b</sup></b>		<b>10233.881<sup>c</sup></b>		<b>10590.746<sup>c</sup></b>	
Isobutanol	595.614	$\pm 4.520$	48.175 <sup>a</sup>	$\pm 2.328$	166.153 <sup>b</sup>	$\pm 0.344$	201.812 <sup>c</sup>	$\pm 5.106$	239.184 <sup>d</sup>	$\pm 1.233$
1-butanol	1295.818	$\pm 5.629$	n.d.		6.227 <sup>a</sup>	$\pm 8.008$	9.454 <sup>b</sup>	$\pm 3.010$	14.040 <sup>c</sup>	$\pm 0.755$
1-pentanol	50.770	$\pm 2.436$	n.d.		17.069 <sup>a</sup>	$\pm 1.304$	23.803 <sup>b</sup>	$\pm 1.311$	33.534 <sup>c</sup>	$\pm 7.661$
2-methyl-2-buten-1-ol	50.889	$\pm 1.577$	n.d.		5.796 <sup>a</sup>	$\pm 8.288$	8.403 <sup>b</sup>	$\pm 3.386$	10.024 <sup>c</sup>	$\pm 4.030$
1-octen-3-ol	41.790	$\pm 1.440$	n.d.		n.d.		8.550 <sup>a</sup>	$\pm 5.166$	13.335 <sup>b</sup>	$\pm 2.252$
2,3-Butanediol ( <i>levo</i> )	n.d.	n.d.	46.370 <sup>a</sup>	$\pm 4.780$	43.240 <sup>a</sup>	$\pm 3.210$	45.470 <sup>a</sup>	$\pm 1.540$	47.360 <sup>a</sup>	$\pm 2.650$
2,3-Butanediol ( <i>meso</i> )	n.d.	n.d.	7.860 <sup>a</sup>	$\pm 3.020$	7.410 <sup>a</sup>	$\pm 2.010$	7.650 <sup>a</sup>	$\pm 0.210$	7.950 <sup>a</sup>	$\pm 1.350$
1-octanol	156.337	$\pm 1.978$	n.d.		26.787 <sup>a</sup>	$\pm 2.216$	52.094 <sup>b</sup>	$\pm 1.223$	77.001 <sup>c</sup>	$\pm 0.504$
3-methylthio-1-propanol	n.d.		199.250 <sup>b</sup>	$\pm 3.640$	182.320 <sup>a</sup>	$\pm 2.650$	195.370 <sup>b</sup>	$\pm 1.470$	198.630 <sup>b</sup>	$\pm 2.680$
1-decanol	211.051	$\pm 0.613$	n.d.		n.d.		n.d.		n.d.	
2-phenylethanol	2531.987	$\pm 1.219$	12358.132 <sup>a</sup>	$\pm 2.282$	12475.077 <sup>a</sup>	$\pm 4.281$	13390.243 <sup>a</sup>	$\pm 2.432$	13183.856 <sup>a</sup>	$\pm 0.637$
<b>ALCOHOLS</b>	<b>4934.254</b>		<b>12659.787<sup>a</sup></b>		<b>12930.078<sup>a</sup></b>		<b>13942.850<sup>a</sup></b>		<b>13824.914<sup>a</sup></b>	
Ehtyl butanoate	584.489	$\pm 1.338$	n.d.		118.829 <sup>a</sup>	$\pm 2.061$	525.253 <sup>b</sup>	$\pm 2.385$	638.084 <sup>c</sup>	$\pm 1.056$

Compound	AD	RSD %	CW	DSR %	AW1	DSR %	AW2	DSR%	AW3	DSR%
Ethyl isovalerate	36.312	± 9.764	n.d.		8.475 <sup>a</sup>	± 7.007	10.544 <sup>b</sup>	± 1.180	31.515 <sup>c</sup>	± 3.303
Isoamyl acetate	4348.040	± 1.681	48.436 <sup>a</sup>	± 0.628	446.469 <sup>b</sup>	± 3.032	875.445 <sup>c</sup>	± 0.200	1243.899 <sup>d</sup>	± 1.351
Ethyl hexanoate	16471.052	± 6.662	n.d.		915.225 <sup>a</sup>	± 3.993	2249.457 <sup>b</sup>	± 1.819	3320.796 <sup>c</sup>	± 1.489
Hexyl acetate	329.495	± 0.787	3.488 <sup>a</sup>	± 1.385	40.638 <sup>b</sup>	± 9.466	89.940 <sup>c</sup>	± 1.114	133.538 <sup>d</sup>	± 1.635
Ethyl <i>cis</i> -3-hexanoate	31.772	± 9.712	n.d.		n.d.		n.d.		17.999 <sup>a</sup>	± 0.661
Ethyl 2-hexanoate	31.790	± 1.893	n.d.		6.805 <sup>a</sup>	± 1.164	13.964 <sup>b</sup>	± 2.038	19.057 <sup>c</sup>	± 3.712
Ethyl octanoate	50156.856	± 3.293	25.258 <sup>a</sup>	± 5.498	2734.199 <sup>b</sup>	± 3.917	6163.332 <sup>c</sup>	± 2.829	7910.461 <sup>d</sup>	± 1.449
Methyl decanoate	30.281	± 5.891	n.d.		n.d.		4.485 <sup>a</sup>	± 4.630	6.684 <sup>b</sup>	± 0.741
Ethyl decanoate	18264.794	± 3.169	n.d.		911.675 <sup>a</sup>	± 4.076	2446.938 <sup>b</sup>	± 1.163	2913.735 <sup>c</sup>	± 1.439
Ethyl 9-decanoate	1176.489	± 2.323	n.d.		72.740 <sup>a</sup>	± 2.682	173.305 <sup>b</sup>	± 1.889	230.256 <sup>c</sup>	± 1.473
2-phenethyl acetate	392.580	± 1.594	9.594 <sup>a</sup>	± 4.077	22.622 <sup>b</sup>	± 2.441	40.829 <sup>c</sup>	± 0.533	55.251 <sup>d</sup>	± 1.021
<b>ESTERS</b>	<b>91853.950</b>		<b>86.775<sup>a</sup></b>		<b>5277.678<sup>b</sup></b>		<b>12593.492<sup>c</sup></b>		<b>16521.274<sup>d</sup></b>	

\* *n.d.*: not detected; <sup>a,b,c,d</sup>: different superindex in the same row indicate significant differences at a 0.05 level according to Student-Newman Keuls statistical test ( $p \leq 0.05$ ) between CW, AW1, AW2 and AW3