

Table *ESI*. Mean and standard deviations (µg/L) of minor volatile compounds in Winery A. CAS: Chemical Abstract Service number. p-value <0.05 indicates statistical differences at 95 % confidence level according to Bonferroni's test. ns: no significance

Winery A	CAS	0control	0test	p-value	6control	6test	p-value	12control	12test	p-value
Butyl acetate	123-86-4	15.593±0.495	12.198±1.319	ns	16.200±16.200	4.682±0.699	0.0003	23.613±1.046	2.325±0.460	<0.0001
Isoamyl acetate	123-92-2	87.220±4.321	132.78±9.520	0.0448	87.850±10.880	186.298±8.718	0.0007	56.793±7.981	143.635±13.133	0.0014
Ethylphenylacetate	101-97-3	73.083±0.718	117.86±5.795	0.0103	102.847±3.412	247.213±0.10	<0.0001	84.783±5.343	234.880±11.778	<0.0001
2-Phenylethylacetate	103-45-7	149.51±2.706	203.09±11.150	0.0345	144.267±8.268	341.632±14.304	<0.0001	92.430±7.597	288.595±14.473	<0.0001
Acetates (4)		325.41±8.240	465.94±27.784	0.0066	351.163±23.852	779.825±32.713	<0.0001	257.620±21.96	669.435±39.844	<0.0001
Ethyl isobutyrate	97-62-1	431.44±5.216	423.89±19.586	ns	643.927±23.861	690.067±9.231	ns	483.117±16.993	561.032±59.473	ns
Ethyl 2-methylbutanoate	7452-79-1	177.35±3.547	149.02±5.096	ns	285.960±10.404	220.382±4.748	0.0025	265.827±9.961	201.908±10.447	0.0029
Ethyl 3-methylbutanoate	108-64-5	264.26±3.920	224.41±7.127	ns	407.247±14.131	342.245±8.822	0.0211	396.703±14.661	320.728±16.009	0.0093
Ethyl hexanoate	123-66-0	596.80±11.337	569.24±21.390	ns	984.593±22.622	831.672±30.844	0.0075	842.713±21.471	562.618±23.179	0.0002
Ethyl heptanoate	106-30-9	0.320±0.010	0.372±0.020	ns	1.180±0.036	1.200±0.200	ns	0.530±0.060	0.547±0.036	ns
Ethyl benzoate	93-89-0	2.623±0.117	2.677±0.111	ns	4.543±0.244	4.968±0.214	ns	3.300±0.168	3.573±0.215	ns
Ethyl octanoate	106-32-1	43.527±2.671	28.782±3.942	ns	595.993±5.365	348.912±6.799	<0.0001	173.783±4.080	4.993±1.389	<0.0001
Ethyl decanoate	110-38-3	19.427±0.265	21.887±0.172	ns	398.020±4.599	301.655±3.570	<0.0001	45.717±1.374	41.760±1.715	ns
Ethyl dodecanoate	106-33-2	6.733±0.160	26.212±0.505	0.0465	120.920±5.003	218.753±8.107	<0.0001	11.513±0.982	45.430±2.852	0.0025
Ethyl tetradecanoate	124-06-1	2.753±0.114	7.582±0.367	0.0102	8.763±0.530	20.703±0.985	<0.0001	6.34±1.326	11.382±0.497	0.0081
Ethyl hexadecanoate	628-97-7	17.080±0.762	35.642±0.973	0.0084	27.907±2.313	38.812±1.973	ns	19.383±1.326	31.540±3.167	ns
Ethyl esters (11)		1562.327±28.118	1489.73±59.290	ns	3479.053±89.109	3019.36±75.328	0.0035	2248.930±76.17	1785.51±118.979	0.0034
Phenethyl hexanoate	101-60-0	0.287±0.006	0.370±0.009	ns	0.613±0.021	2.065±0.040	<0.0001	0.000±0.000	0.812±0.031	<0.0001
Phenethyl benzoate	94-47-3	1.610±0.044	1.595±0.070	ns	5.093±0.467	3.603±0.702	ns	0.900±0.052	0.940±0.048	ns
Others esters (2)		1.897±0.049	1.965±0.079	ns	5.707±0.488	5.668±0.742	ns	0.900±0.052	1.752±0.079	ns

Hexanol	111-27-3	789.803±46.306	642.652±0.763	0.0259	827.040±26.854	514.048±19.672	0.0004	489.343±33.651	287.990±11.650	0.0049
2-Ethyl-1-hexanol	104-76-7	nd	nd		nd	nd		nd	nd	
Decanol	112-30-1	53.570±3.734	33.570±31.582	ns	14.230±0.396	0.00±0.00	ns	0.000±0.000	0.000±0.000	ns
2-Furanmethanol	98-00-0	6.563±0.246	6.193±1.671	ns	10.527±2.282	7.940±2.243	ns	4.403±1.410	4.403±1.410	ns
Higers alcohols (4)		849.937±50.286	682.415±34.016	0.0066	851.797±29.532	521.988±21.916	0.0002	493.747±35.061	292.393±13.060	0.0025
γ-Butyrolactone	96-48-0	15,363.5±479.5	17,334.6±1,230.5	ns	29,509.1±1,230.5	27,597.8±4,022.7	ns	16,880.7±3,884.2	20,785.0±2,428.8	ns
Crotonolactone	497-23-4	113.300±9.757	186.455±7.951	0.0127	343.615±9.015	68.403±6.057	<0.0001	339.091±22.456	115.262±8.309	<0.0001
(E)-Whiskey lactone	80041-10-1	705.353±17.257	703.480±52.280	ns	999.140±45.982	1205.22±66.755	ns	784.850±77.918	1,026.100±82.476	ns
γ-Nanolactone	104-61-0	61.680±1.363	55.860±4.629	ns	13.513±0.582	14.733±0.659	ns	5.213±0.982	0.982±0.987	ns
Lactones (4)		16,243.9±507.9	1,8280.4±1,295.3	ns	30,865.4±1,286.1	28,886.1±4,096.1	ns	18,009.9±3,985.5	21,933.5±2,520.5	ns
Furfural	98-01-1	566.633±69.452	498.550±90.670	ns	756.553±112.780	602.105±127.504	ns	536.320±30.245	463.483±124.648	ns
Heptanal	111-71-7	1.353±0.015	0.467±0.154	0.0003	1.513±0.095	0.000±0.000	<0.0001	0.000±0.000	0.000±0.000	ns
Octanal	124-13-0	1.480±0.359	0.860±0.112	ns	1.363±0.112	6.680±4.396	ns	2.300±0.483	11.730±2.984	ns
Nonanal	124-19-6	1.190±0.804	0.010±0.000	ns	1.737±0.167	0.202±0.239	ns	6.660±0.980	2.267±1.079	0.0106
Decanal	112-31-2	3.513±0.457	1.318±0.544	ns	2.540±1.452	3.277±0.836	ns	8.863±2.550	7.347±2.064	ns
Benzophenone	11961-9	0.333±0.136	0.178±0.135	ns	0.010±0.000	0.010±0.000	ns	0.000±0.000	0.010±0.000	ns
Carbonyl Compounds (6)		574.503±71.224	501.383±91.616	ns	763.717±114.604	612.273±132.976	ns	554.143±34.257	484.837±130.774	ns
β-Damascenone	23726-93-4	2.087±0.133	1.992±0.103	ns	12.790±0.149	9.890±0.171	ns	16.300±19.615	9.484±9.885	ns
Norisoprenoids (1)		2.087±0.133	1.992±0.103	ns	12.790±0.149	9.890±0.171	ns	16.300±19.615	9.484±9.885	ns
4-Ethylguaicol	2785-89-9	782.930±23.308	711.398±49.305	ns	910.247±41.508	830.512±79.013	ns	231.607±35.821	265.217±22.077	ns
Volatile Phenols (1)		782.930±23.308	711.398±49.305	ns	910.247±41.508	830.512±79.013	ns	231.607±35.821	265.217±22.077	ns
Limonene	5989-27-5	0.000±0.000	0.000±0.000	ns	13.423±3.536	16.145±1.276	ns	55.497±4.552	4.552±6.940	ns
(Z)-Geranylactone	689-67-8	1.623±0.045	1.680±0.084	ns	1.623±0.045	1.487±0.063	ns	0.000±0.000	0.247±0.427	ns
Farnesol	4602-84-0	0.000±0.000	0.001±0.000	ns	0.001±0.000	16.908±1.999	<0.0001	0.007±0.006	2.477±0.830	ns
(E)-Methyl dihydrojasmonate	24851-98-7	19.203±0.640	15.965±1.553	ns	2.670±0.297	0.880±1.507	ns	0.007±0.006	0.007±0.003	ns
Terpenes and derivates (4)		20.827±0.686	17.655±1.637	ns	17.72±3.879	35.420±4.846	0.0268	4.846±4.564	68.995±8.200	ns

Table ES2. Mean and standard deviations ($\mu\text{g/L}$) of minor volatile compounds in Winery B. CAS: Chemical Abstract Service number. p-value <0.05 indicates statistical differences at 95 % confidence level according to Bonferroni's test. ns: no significance.

Winery B	CAS	0control	0test	p-value	6control	6test	p-value	12control	12test	p-value
Butyl acetate	123-86-4	4.310 $\pm$ 0.130	0.885 $\pm$ 1.090	ns	1.357 $\pm$ 0.240	1.563 $\pm$ 0.670	ns	1.923 $\pm$ 1.527	2.045 $\pm$ 0.425	ns
Isoamyl acetate	123-92-2	164.410 $\pm$ 6.472	284.495 $\pm$ 26.970	0.0007	0.010 $\pm$ 0.000	60.847 $\pm$ 5.526	0.0300	0.010 $\pm$ 0.000	25.222 $\pm$ 4.340	ns
Ethylphenylacetate	101-97-3	128.673 $\pm$ 4.380	173.903 $\pm$ 15.327	0.0118	68.513 $\pm$ 3.635	93.713 $\pm$ 4.035	ns	41.663 $\pm$ 4.463	57.047 $\pm$ 3.461	ns
2-Phenylethylacetate	103-45-7	295.080 $\pm$ 14.977	397.285 $\pm$ 44.522	0.0310	80.260 $\pm$ 4.897	144.653 $\pm$ 7.166	ns	32.673 $\pm$ 3.984	73.803 $\pm$ 6.667	ns
Acetates (4)		592.473$\pm$25.959	856.568$\pm$87.907	0.0015	150.140$\pm$8.771	300.777$\pm$17.396	0.0249	76.270$\pm$9.974	158.117$\pm$14.893	ns
Ethyl isobutyrate	97-62-1	1701.02 $\pm$ 24.462	2,139.1 $\pm$ 133.2	0.0460	1,348.6 $\pm$ 99.5	1,387.3 $\pm$ 45.2	ns	1,452.4 $\pm$ 131.0	1,022.62 $\pm$ 54.6	ns
Ethyl 2-methylbutanoate	7452-79-1	459.507 $\pm$ 5.286	592.612 $\pm$ 31.079	0.0078	31.079 $\pm$ 24.251	422.580 $\pm$ 9.767	ns	391.26 $\pm$ 18.281	366.735 $\pm$ 18.289	ns
Ethyl 3-methylbutanoate	108-64-5	799.420 $\pm$ 7.316	1,019.5 $\pm$ 58.7	0.0270	674.493 $\pm$ 41.939	756.953 $\pm$ 18.519	ns	668.533 $\pm$ 54.370	736.932 $\pm$ 41.523	ns
Ethyl hexanoate	123-66-0	856.357 $\pm$ 17.120	863.502 $\pm$ 32.213	ns	687.990 $\pm$ 28.963	599.923 $\pm$ 14.133	ns	578.067 $\pm$ 66.354	500.292 $\pm$ 28.186	ns
Ethyl heptanoate	106-30-9	1.337 $\pm$ 0.023	1.538 $\pm$ 0.069	ns	1.623 $\pm$ 0.021	1.643 $\pm$ 0.032	ns	0.513 $\pm$ 0.104	0.000 $\pm$ 0.000	0.0012
Ethyl benzoate	93-89-0	12.583 $\pm$ 0.344	11.083 $\pm$ 0.695	ns	9.290 $\pm$ 0.387	7.768 $\pm$ 0.254	ns	5.457 $\pm$ 0.403	4.342 $\pm$ 0.215	ns
Ethyl octanoate	106-32-1	360.387 $\pm$ 6.314	263.607 $\pm$ 17.225	0.0008	449.807 $\pm$ 8.616	233.607 $\pm$ 2.356	<0.0001	14.083 $\pm$ 11.815	0.010 $\pm$ 0.000	ns
Ethyl decanoate	110-38-3	197.867 $\pm$ 2.017	158.817 $\pm$ 1.512	<0.0001	308.097 $\pm$ 2.473	218.110 $\pm$ 3.708	<0.0001	18.677 $\pm$ 3.572	15.237 $\pm$ 1.207	ns
Ethyl dodecanoate	106-33-2	35.053 $\pm$ 2.615	30.885 $\pm$ 2.628	ns	72.277 $\pm$ 11.580	48.017 $\pm$ 1.706	ns	8.647 $\pm$ 7.489	0.000 $\pm$ 0.000	ns
Ethyl tetradecanoate	124-06-1	3.723 $\pm$ 0.350	2.535 $\pm$ 1.070	ns	8.344 $\pm$ 0.330	6.443 $\pm$ 0.369	ns	11.737 $\pm$ 1.941	1.198 $\pm$ 2.076	0.0024
Ethyl hexadecanoate	628-97-7	13.247 $\pm$ 1.005	8.942 $\pm$ 2.107	ns	61.600 $\pm$ 73.679	12.888 $\pm$ 1.410	ns	25.977 $\pm$ 6.291	11.838 $\pm$ 1.276	ns
Ethyl esters (11)		4,440.5$\pm$66.8	5,092.2$\pm$280.5	ns	4,020.0$\pm$291.7	3,695.2$\pm$97.4	ns	3,175.3$\pm$301.7	2,659.2$\pm$147.4	ns
Phenethyl hexanoate	101-60-0	0.633 $\pm$ 0.021	1.292 $\pm$ 0.022	<0.0001	0.577 $\pm$ 0.015	1.043 $\pm$ 0.021	<0.0001	0.000 $\pm$ 0.000	0.000 $\pm$ 0.031	ns
Phenethyl benzoate	94-47-3	1.467 $\pm$ 0.441	1.092 $\pm$ 0.298	ns	3.993 $\pm$ 0.865	4.015 $\pm$ 0.434	ns	7.593 $\pm$ 2.290	0.927 $\pm$ 0.049	0.0101
Others esters (2)		2.100$\pm$0.461	2.383$\pm$0.319	ns	4.570$\pm$0.880	5.058$\pm$0.454	ns	7.593$\pm$2.290	0.927$\pm$0.049	0.0021

Hexanol	111-27-3	2,356.9±136.5	1,647.2±166.8	0.0044	1,015.9±59.2	705.662±28.196	0.2560	715.377±53.977	378.192±19.267	ns
2-Ethyl-1-hexanol	104-76-7	0.010±0.000	0.010±0.000	ns	16.207±14.314	4.268±6.029	ns	0.000±0.000	0.000±0.000	ns
Decanol	112-30-1	10.317±1.975	21.615±17.426	ns	16.930±0.918	23.230±3.554	ns	0.000±0.000	0.000±0.000	ns
2-Furanmethanol	98-00-0	6.853±0.544	7.187±4.353	ns	6.347±0.578	6.447±1.000	ns	3.110±0.693	0.000±0.000	ns
Higers alcohols (4)		2,374.1±139.1	1,676.0±188.6	0.0166	1,055.4±75.0	739.607±38.779	ns	718.487±54.670	378.192±19.267	ns
γ-Butyrolactone	96-48-0	37,632.6±736.0	47,384.5±7,813.6	ns	24,323.0±1,696.7	29,644.2±825.9	ns	24,577.0±3,341.1	25,298.9±2,701.9	ns
Crotonolactone	497-23-4	160.447±138.991	564.805±394.122	ns	0.010±0.000	134.885±33.888	ns	61.180±105.967	0.000±0.000	ns
(E)-Whiskey lactone	80041-101	965.930±40.764	1,116.1±132.6	ns	409.230±36.499	533.298±31.609	ns	214.863±15.380	263.965±39.785	ns
γ-Nanolactone	104-61-0	44.283±0.693	38.108±8.229	ns	13.537±1.733	14.170±1.898	ns	2.963±2.756	0.000±0.000	ns
Lactones (4)		38,803.3±916.5	49,103.6±8348.7	ns	24,745.8±1,735.0	30,326.5±893.2	ns	24,856.0±3465.2	25,562.8±2,741.6	ns
Furfural	98-01-1	470.090±44.095	44.095±259.644	ns	658.257±70.983	654.103±161.342	ns	534.087±170.817	287.008±20.273	ns
Heptanal	111-71-7	1.757±0.162	1.287±0.298	ns	1.383±0.055	0.000±0.000	0.0009	0.000±0.000	0.000±0.000	ns
Octanal	124-13-0	1.757±0.162	1.287±0.298	ns	1.187±0.247	8.00±0.329	0.0036	14.707±2.000	12.858±0.56	ns
Nonanal	124-19-6	1.977±0.580	0.207±0.273	ns	2.290±0.416	1.520±0.603	ns	3.590±1.293	2.885±1.515	ns
Decanal	112-31-2	5.720±0.078	1.525±0.826	ns	6.020±1.347	3.663±0.805	ns	6.343±1.567	6.922±2.540	ns
Benzophenone	11961-9	0.010±0.000	0.010±0.000	ns	0.010±0.000	0.010±0.000	ns	0.010±0.000	0.010±0.000	ns
Carbonyl Compounds (6)		481.310±45.076	536.255±261.339	ns	669.147±73.047	667.297±163.079	ns	558.737±175.676	309.683±24.889	ns
β-Damascenone	23726-93-4	6.913±0.040	6.058±0.183	ns	9.120±0.089	7.000±0.170	0.0080	0.837±0.727	0.000±0.000	ns
Norisoprenoids (1)		6.913±0.040	6.058±0.183	ns	9.120±0.089	7.000±0.170	0.0080	0.837±0.727	0.000±0.000	ns
4-Ethylguaicol	2785-89-9	7,633.7±290.5	8,721.2±1331.0	ns	3,045.3±195.4	4,414.9±233.8	ns	999.140±81.874	1,234.6±79.3	ns
Volatile Phenols (1)		7,633.7±290.5	8,721.2±1331.0	ns	3,045.3±195.4	4,414.9±233.8	ns	999.140±81.874	1234.6±79.3	ns
Limonene	5989-27-5	0.001±0.000	0.001±0.000	ns	18.967±2.925	18.008±1.205	ns	0.000±0.000	0.000±0.000	ns
(Z)-Geranylactone	689-67-8	2.373±0.597	1.483±0.087	ns	1.710±0.079	1.645±0.099	ns	1.510±0.057	0.000±0.000	0.0148
Farnesol	4602-84-0	0.001±0.000	0.001±0.000	ns	0.001±0.000	0.001±0.000	ns	0.001±0.000	0.000±0.000	ns
(E)-Methyl dihydrojasmonate	24851-98-7	5.810±1.987	1.455±1.456	ns	1.247±1.729	0.207±0.326	ns	0.001±0.000	0.000±0.000	ns
Terpenes and derivates (4)		8.203±2.584	2.958±1.543	ns	21.933±4.733	19.870±1.630	ns	1.530±0.057	0.000±0.000	ns