

Supplementary material

Table S1. Volatile phenol analyses of smoked Chenin Blanc wines produced from smoked juice using different commercial wine yeasts.

Treatment	4-Methyl-				2,6-dimethyl					
	Guaiacol ($\mu\text{g/L}$)	guaiacol ($\mu\text{g/L}$)	4-Ethylguaiacol ($\mu\text{g/L}$)	Phenol ($\mu\text{g/L}$)	4-Ethyl phenol ($\mu\text{g/L}$)	phenol ($\mu\text{g/L}$)	<i>o</i> -Cresol ($\mu\text{g/L}$)	<i>m</i> -Cresol ($\mu\text{g/L}$)	<i>p</i> -Cresol ($\mu\text{g/L}$)	Eugenol ($\mu\text{g/L}$)
Juice (C ¹)	ND ⁴	0.45	ND	ND	ND	1.71	0.79	0.10	0.32	ND
Juice (S ²)	2.88	2.04	1.78	ND	0.54	25.64	2.36	0.96	1.22	ND
QA 23	15.15 \pm 1.14 ^a	12.58 \pm 1.32 ^a	5.36 \pm 0.64 ^a	29.89 \pm 3.07 ^a	1.22 \pm 0.15 ^{ab}	1.37 \pm 0.41 ^b	5.13 \pm 0.35 ^{ab}	2.73 \pm 2.00 ^{ab}	5.00 \pm 0.59 ^a	1.46 \pm 0.24 ^a
BM4x4	13.51 \pm .14 ^{ab}	10.54 \pm 1.32 ^{ab}	4.15 \pm 0.64 ^{abcd}	25.76 \pm 3.07 ^{abc}	1.13 \pm 0.15 ^{ab}	1.26 \pm 0.41 ^b	4.93 \pm 0.35 ^{ab}	2.84 \pm 2.00 ^{ab}	3.93 \pm 0.59 ^{ab}	1.09 \pm 0.24 ^{ab}
AWRI R2	13.28 \pm 1.14 ^{ab}	11.43 \pm 1.32 ^{ab}	4.85 \pm 0.64 ^{ab}	26.06 \pm 3.07 ^{abc}	1.34 \pm 0.15 ^a	1.33 \pm 0.41 ^b	4.65 \pm 0.35 ^{ab}	3.25 \pm 2.00 ^a	4.50 \pm 0.59 ^{ab}	1.42 \pm 0.24 ^a
Rhone 4600	13.13 \pm 0.93 ^{ab}	10.70 \pm 1.08 ^{ab}	4.05 \pm 0.53 ^{abcd}	24.48 \pm 2.05 ^{abc}	1.08 \pm 0.12 ^{ab}	1.30 \pm 0.34 ^b	4.68 \pm 0.29 ^{ab}	2.79 \pm 1.63 ^{ab}	3.95 \pm 0.48 ^{ab}	1.02 \pm 0.20 ^{ab}
Cross evol.	13.02 \pm 1.14 ^{ab}	10.06 \pm 1.32 ^{ab}	3.94 \pm 0.64 ^{abcd}	25.88 \pm 3.07 ^{abc}	1.04 \pm 0.15 ^{ab}	1.32 \pm 0.41 ^b	4.78 \pm 0.35 ^{ab}	2.82 \pm 2.00 ^{ab}	4.01 \pm 0.59 ^{ab}	1.08 \pm 0.20 ^{ab}
Alch II	12.71 \pm 1.14 ^{ab}	10.76 \pm 1.32 ^{ab}	4.03 \pm 0.64 ^{abcd}	23.47 \pm 3.07 ^{abc}	0.92 \pm 0.15 ^{ab}	1.21 \pm 0.14 ^b	5.41 \pm 0.35 ^a	2.02 \pm 2.00 ^{bc}	4.09 \pm 0.59 ^{ab}	1.18 \pm 0.24 ^{ab}
VIN 7	12.52 \pm 0.93 ^{ab}	10.92 \pm 108 ^{ab}	4.59 \pm 0.53 ^{abc}	28.13 \pm 2.50 ^{ab}	1.21 \pm 0.12 ^{ab}	1.37 \pm 0.34 ^b	4.75 \pm 0.29 ^{ab}	2.66 \pm 1.63 ^{ab}	4.31 \pm 0.48 ^{ab}	1.31 \pm 0.20 ^{ab}
Spont AF ³	12.03 \pm 0.93 ^{ab}	9.01 \pm 1.08 ^{ab}	3.51 \pm 0.53 ^{bcd}	21.95 \pm 2.05 ^{abc}	0.87 \pm 0.12 ^b	1.34 \pm 0.34 ^b	4.46 \pm 0.29 ^{ab}	1.37 \pm 1.63 ^c	3.34 \pm 0.48 ^{ab}	0.86 \pm 0.20 ^{ab}
BDX	12.01 \pm 1.14 ^{ab}	9.99 \pm 1.32 ^{ab}	3.74 \pm 0.64 ^{abcd}	23.70 \pm 3.07 ^{abc}	0.99 \pm 0.15 ^{ab}	1.31 \pm 0.41 ^b	4.46 \pm 0.35 ^{ab}	2.08 \pm 2.00 ^{bc}	3.78 \pm 0.59 ^{ab}	1.04 \pm 0.24 ^{ab}
UOA Maxi	11.99 \pm 1.14 ^{ab}	8.90 \pm 1.32 ^{ab}	3.37 \pm 0.64 ^{bcd}	21.71 \pm 3.07 ^{abc}	1.14 \pm 0.15 ^{ab}	2.82 \pm 0.41 ^a	4.21 \pm 0.35 ^b	2.04 \pm 2.00 ^{bc}	3.71 \pm 0.59 ^{ab}	0.81 \pm 0.24 ^{ab}
X5	11.65 \pm 1.14 ^b	9.55 \pm 1.32 ^{ab}	3.41 \pm 0.64 ^{bcd}	21.54 \pm 3.07 ^{abc}	1.07 \pm 0.15 ^{ab}	1.13 \pm 0.41 ^b	4.53 \pm 0.35 ^{ab}	2.70 \pm 2.00 ^{ab}	3.39 \pm 0.59 ^{ab}	0.91 \pm 0.24 ^{ab}
VIN 13	10.90 \pm 1.14 ^b	8.27 \pm 1.32 ^b	2.88 \pm 0.64 ^{cd}	19.42 \pm 3.07 ^{bc}	0.89 \pm 0.15 ^{ab}	1.09 \pm 0.41 ^b	4.46 \pm 0.35 ^{ab}	1.96 \pm 2.00 ^{bc}	2.89 \pm 0.59 ^b	0.79 \pm 0.24 ^{ab}
X16	10.82 \pm 1.14 ^b	8.33 \pm 1.32 ^b	2.78 ^d \pm 0.64 ^d	19.84 \pm 3.07 ^c	0.87 \pm 0.15 ^b	1.23 \pm 0.41 ^b	4.35 ^b \pm 0.35 ^b	2.12 \pm 2.00 ^{bc}	2.86 \pm 0.59 ^b	0.69 \pm 0.24 ^b

¹ C: control, no smoke exposure. ² S: smoke exposed juice. ³ Spontaneous alcoholic fermentation (details about the yeast strains can be found in the materials and methods). ⁴ Not detected. Except for juice, values represents the mean of three replicates (\pm standard error of the mean). Means in columns followed by different superscript letters are significantly different ($p \leq 0.05$).

Table S2. Volatile phenol analyses of smoked Merlot wines produced from smoked juice using different commercial wine yeasts.

Treatment	Guaiacol (µg/L)	4-Methyl Guaiacol (µg/L)	4-Ethyl Guaiacol (µg/L)	Phenol (µg/L)	4-Ethyl Phenol (µg/L)	2,6-dimethyl phenol (µg/L)	<i>o</i> -Cresol (µg/L)	<i>m</i> -Cresol (µg/L)	<i>p</i> -cresol (µg/L)	Eugenol (µg/L)
Juice (C ¹)	ND	0.50	0.95	ND	ND	2.81	0.71	0.16	0.28	ND
Juice (S ²)	2.03	0.81	1.11	ND	ND	15.08	0.93	0.28	0.38	ND
Spon AF ³	8.21 ± 0.20 ^a	4.56 ± 0.16 ^a	2.35 ± 0.08 ^a	11.64 ± 0.46 ^{abc}	0.77 ± 0.03 ^a	1.81 ± 0.05 ^a	2.38 ± 0.06 ^b	0.66 ± 0.08 ^{hi}	2.25 ± 0.06 ^a	0.59 ± 0.04 ^c
D254	7.42 ± 0.20 ^b	3.65 ± 0.16 ^b	1.83 ± 0.08 ^b	12.69 ± 0.46 ^{ab}	0.6 ± 0.03 ^{bcd}	0.99 ± 0.05 ^f	2.38 ± 0.06 ^b	0.55 ± 0.08 ⁱ	1.9 ± 0.05 ^{bc}	0.51 ± 0.04 ^{cde}
Exence	7.39 ± 0.20 ^b	3.43 ± 0.16 ^{bcd}	1.78 ± 0.08 ^{bcd}	12.87 ± 0.46 ^a	0.58 ± 0.03 ^{bcd}	1.22 ± 0.05 ^{bc}	2.23 ± 0.06 ^{bc}	1.46 ± 0.08 ^{bc}	1.86 ± 0.06 ^{bcd}	0.39 ± 0.04 ^f
D21	7.27 ± 0.20 ^b	3.59 ± 0.16 ^{bc}	1.79 ± 0.08 ^{bcd}	12.34 ± 0.46 ^{abc}	0.62 ± 0.03 ^{bc}	1.23 ± 0.05 ^{bc}	2.01 ± 0.06 ^{def}	1.45 ± 0.08 ^{bc}	1.87 ± 0.06 ^{bcd}	0.41 ± 0.04 ^{ef}
NT 50	7.17 ± 0.20 ^{bc}	3.22 ± 0.16 ^{cde}	1.73 ± 0.08 ^{bcd}	12.64 ± 0.46 ^{ab}	0.65 ± 0.02 ^b	1.33 ± 0.04 ^b	2.06 ± 0.06 ^{de}	1.69 ± 0.06 ^a	1.93 ± 0.06 ^b	0.82 ± 0.03 ^a
YSEO Clos	7.16 ± 0.20 ^{bcd}	3.54 ± 0.16 ^{bc}	1.79 ± 0.08 ^{bcd}	12.44 ± 0.46 ^{ab}	0.6 ± 0.03 ^{bcd}	1.14 ± 0.05 ^{cde}	2.70 ± 0.06 ^a	0.9 ± 0.08 ^{fg}	1.85 ± 0.06 ^{bcd}	0.41 ± 0.04 ^{ef}
QA23	7.15 ± 0.20 ^{bcd}	3.59 ± 0.16 ^b	1.81 ± 0.08 ^{bc}	11.98 ± 0.46 ^{abc}	0.56 ± 0.03 ^{cd}	1.12 ± 0.05 ^{cdef}	2.14 ± 0.06 ^{bc}	0.78 ± 0.08 ^{gh}	1.87 ± 0.06 ^{bcd}	0.52 ± 0.04 ^{cd}
AWRI 796	7.11 ± 0.20 ^{bcd}	3.29 ± 0.16 ^{bcd}	1.77 ± 0.08 ^{bcd}	12.82 ± 0.46 ^a	0.59 ± 0.03 ^{bcd}	1.04 ± 0.05 ^{def}	2.24 ± 0.06 ^{bc}	1.12 ± 0.08 ^{def}	1.84 ± 0.06 ^{bcd}	0.62 ± 0.04 ^{bc}
BDX	7.03 ± 0.20 ^{bcd}	3.57 ± 0.16 ^{bc}	1.76 ± 0.08 ^{bcd}	11.43 ± 0.46 ^{bc}	0.53 ± 0.03 ^d	1.19 ± 0.05 ^{cd}	1.98 ± 0.06 ^{def}	0.57 ± 0.08 ^{hi}	1.84 ± 0.06 ^{bcd}	0.42 ± 0.04 ^{def}
D80	6.87 ± 0.20 ^{bcd}	3.32 ± 0.16 ^{bcd}	1.66 ± 0.08 ^{bcd}	12.36 ± 0.46 ^{abc}	0.57 ± 0.03 ^{cd}	1.02 ± 0.05 ^{ef}	2.12 ± 0.06 ^{cd}	1.31 ± 0.08 ^{cd}	1.80 ± 0.06 ^{bcd}	0.38 ± 0.04 ^f
FX10	6.65 ± 0.20 ^{cdef}	3.14 ± 0.16 ^{cde}	1.61 ± 0.08 ^{bcd}	11.41 ± 0.46 ^{bc}	0.55 ± 0.03 ^{cd}	1.22 ± 0.05 ^{bc}	1.91 ± 0.06 ^{efg}	1.26 ± 0.08 ^{cd}	1.73 ± 0.06 ^{cdef}	0.42 ± 0.04 ^{def}
NT 202	6.61 ± 0.20 ^{def}	2.96 ± 0.16 ^e	1.58 ± 0.08 ^{cd}	11.84 ± 0.46 ^{abc}	0.56 ± 0.03 ^{cd}	1.12 ± 0.05 ^{cdef}	1.91 ± 0.06 ^{efg}	1.74 ± 0.08 ^a	1.76 ± 0.06 ^{cdef}	0.37 ± 0.04 ^f
VIN 13	6.60 ± 0.20 ^{def}	2.89 ± 0.16 ^e	1.56 ± 0.08 ^d	11.97 ± 0.46 ^{abc}	0.62 ± 0.03 ^{bc}	1.03 ± 0.05 ^{ef}	2.02 ± 0.06 ^{def}	1.47 ± 0.08 ^{bc}	1.78 ± 0.06 ^{bcd}	0.72 ± 0.04 ^{ab}
WE 372	6.57 ± 0.20 ^{ef}	2.97 ± 0.16 ^{de}	1.55 ± 0.08 ^d	12.03 ± 0.46 ^{abc}	0.58 ± 0.03 ^{bcd}	1.22 ± 0.05 ^{bc}	1.93 ± 0.06 ^{efg}	1.2 ± 0.08 ^{de}	1.71 ± 0.06 ^{def}	0.55 ± 0.04 ^c
RX60	6.55 ± 0.20 ^{ef}	3.00 ± 0.16 ^{de}	1.60 ± 0.08 ^{bcd}	11.01 ± 0.46 ^c	0.55 ± 0.03 ^{cd}	1.04 ± 0.05 ^{def}	1.86 ± 0.06 ^{efg}	1.03 ± 0.08 ^{ef}	1.68 ± 0.06 ^{ef}	0.37 ± 0.04 ^f
NT 112	6.46 ± 0.20 ^f	2.95 ± 0.16 ^e	1.65 ± 0.08 ^{bcd}	11.84 ± 0.46 ^{abc}	0.59 ± 0.03 ^{bcd}	0.98 ± 0.05 ^f	1.79 ± 0.06 ^{efg}	1.57 ± 0.08 ^{ab}	1.65 ± 0.06 ^f	0.43 ± 0.04 ^{def}

¹ C: control, no smoke exposure. ² S: smoke treatment. ³ Spontaneous alcoholic fermentation (details about the yeast strains can be found in the materials and methods). ⁴ Not detected. Except for juice, values represent the mean of three replicates (± standard error of the mean). Means in columns followed by different superscript letters are significantly different ($p \leq 0.05$).

Table S3. Volatile phenol analyses of Chenin Blanc wines produced from unsmoked and smoked juice three commercial wine yeasts.

Treatment	4-Methyl-			2,6-dimethyl						
	Guaiacol (µg/L)	guaiacol (µg/L)	4-Ethylguaiacol (µg/L)	Phenol (µg/L)	4-Ethyl phenol (µg/L)	phenol (µg/L)	<i>o</i> -Cresol (µg/L)	<i>m</i> -Cresol (µg/L)	<i>p</i> -Cresol (µg/L)	Eugenol (µg/L)
Juice (C ¹)	ND ³	0.45	ND	ND	ND	1.71	0.79	0.10	0.32	ND
Juice (S ²)	2.88	2.04	1.78	ND	0.54	25.64	2.36	0.96	1.22	ND
QA 23 (C)	0.47 ± 0.60 ^b	ND	ND	18.52 ± 4.27 ^{bc}	ND	0.36 ± 0.17 ^b	0.92 ± 0.27 ^b	ND	ND	0.07 ± 0.09 ^b
QA 23 (S)	4.76 ± 0.60 ^a	2.02 ± 0.28 ^a	0.26 ± 0.03 ^a	41.14 ± 4.27 ^a	1.25 ± 0.22 ^a	1.14 ± 0.17 ^a	3.59 ± 0.27 ^a	ND	ND	0.58 ± 0.09 ^a
VIN 13 (C)	0.71 ± 0.60 ^b	0.17 ± 0.28 ^b	ND	8.75 ± 4.27 ^c	ND	0.93 ± 0.17 ^{ab}	0.54 ± 0.27 ^b	ND	ND	0.09 ± 0.09 ^b
VIN 13 (S)	1.93 ± 0.60 ^b	0.67 ± 0.28 ^b	ND	22.20 ± 4.27 ^{abc}	0.35 ± 0.22 ^b	1.26 ± 0.17 ^a	1.51 ± 0.27 ^b	ND	ND	0.23 ± 0.09 ^b
X16 (C)	0.53 ± 0.60 ^b	ND	ND	24.86 ± 4.27 ^{abc}	ND	1.16 ± 0.17 ^a	1.02 ± 0.27 ^b	ND	ND	0.10 ± 0.09 ^b
X16 (S)	4.64 ± 0.60 ^a	1.91 ± 0.28 ^a	0.07 ± 0.03 ^b	30.23 ± 4.27 ^{ab}	1.47 ± 0.22 ^a	1.24 ± 0.17 ^a	2.93 ± 0.27 ^a	ND	ND	0.62 ± 0.09 ^a

¹ C: control, no smoke exposure, S: smoke treatment. ³ Not detected. Except for juice, values represent the mean of three replicates (± standard error of the mean). Means in columns followed by different superscript letters are significantly different ($p \leq 0.05$).