

Table S1. Loadings obtained from the data matrix of major volatile compounds used as chemical variables to build the PCA of wines.

	CAS	Component 1	Component 2
Acetaldehyde	75-07-0	0.298	- 0.190
Ethyl acetate	141-78-6	0.302	- 0.061
1,1-Diethoxyethane	105-57-7	0.315	- 0.126
Methanol	67-56-1	- 0.202	- 0.292
1-Propanol	71-23-8	0.337	- 0.074
Isobutanol	78-83-1	0.152	0.351
2-Methyl-1-butanol	137-32-6	0.214	0.257
3-Methyl-1-butanol	123-51-3	0.225	0.236
Acetoin	513-86-0	0.333	0.097
Ethyl lactate	97-64-3	0.331	0.091
2,3-Butanediol <i>levo</i>	24347-58-8	- 0.126	0.413
2,3-Butanediol <i>meso</i>	5341-95-7	- 0.051	0.464
Diethyl succinate	123-25-1	- 0.272	0.259
2-Phenylethanol	60-12-8	0.289	0.168
Glycerol	56-81-5	0.235	0.331

Table S2. Loadings obtained from the data matrix of minor volatile compounds used as chemical variables to build the PCA of wines.

	CAS	Component 1	Component 2	Component 3
2-Furanmethanol	98-00-0	0,100	0,170	-0,262
1-Hexadecanol	36653-82-4	0,195	-0,155	-0,220
1-Tetradecanol	112-72-1	0,097	0,006	0,334
2-Ethyl-1-hexanol	104-76-7	-0,080	0,178	-0,050
Octanoic acid	124-07-2	0,194	0,174	-0,124
n-Decanoic acid	334-48-5	0,169	0,011	-0,284
Ethyl isobutyrate	97-62-1	-0,248	-0,171	-0,015
Ethyl butanoate	105-54-4	-0,004	0,253	-0,079
Ethyl hexanoate	123-66-0	0,239	0,175	-0,007
Ethyl octanoate	106-32-1	0,258	-0,013	0,046
Ethyl 9-decenoate	67233-91-4	0,241	-0,108	0,161
Ethyl decanoate	110-38-3	0,202	0,058	-0,061
Ethyl dodecanoate	106-33-2	-0,134	0,123	0,147
Ethyl 3-hydroxytridecanoate	107141-15-1	0,195	-0,152	-0,210
Ethyl tetradecanoate	124-06-1	0,131	-0,020	-0,057
Ethyl hexadecanoate	628-97-7	0,077	0,149	-0,063
Ethyl 4-ethoxybenzoate	23676-09-7	-0,251	-0,169	-0,012
3-Methyl-1 butanol acetate	123-92-2	0,175	-0,136	0,215
2-Methyl-1 butanol acetate	624-41-9	-0,230	-0,114	0,056
Dihydro methyl jasmonate	24851-98-7	0,227	-0,143	-0,026
Methyl hydrojasmonate	39924-52-2	-0,207	0,202	0,006
1H-Indole-3-ethanol, acetate	13137-14-9	0,097	0,011	0,349
δ-Dodecalactone	713-95-1	-0,231	-0,171	-0,015
β-Pinene	127-91-3	0,090	0,010	0,347
D-Limonene	5989-27-5	0,079	-0,014	0,310
Nerolidol	142-50-7	-0,041	0,319	-0,121
Geranyl acetone	689-67-8	0,255	-0,134	0,076
Farnesol	4602-84-0	0,009	0,327	-0,025
Benzophenone	119-61-9	0,195	-0,156	-0,217
2,4-Di-tert-butylphenol	96-76-4	-0,206	0,047	0,023
Decanal	112-31-2	-0,186	-0,113	-0,120
Cyclododecane	294-62-2	-0,052	-0,285	-0,200
1-Decene	872-05-9	0,047	0,291	0,188

2,5-Cyclohexadien-1-one, 2,6-bis(1,1-dimethylethyl)-4-ethylidene-	6738-27-8	-0,042	0,319	-0,122
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Figure S1. Fermentation progress. Starter cultures supplied to grape must: WY spontaneous fermentation without starter addition. SC *Saccharomyces cerevisiae* glutathione over-producing. MP: *Mestchnikovia pulcherrima*. LT: *Lachancea thermotolerans*.

