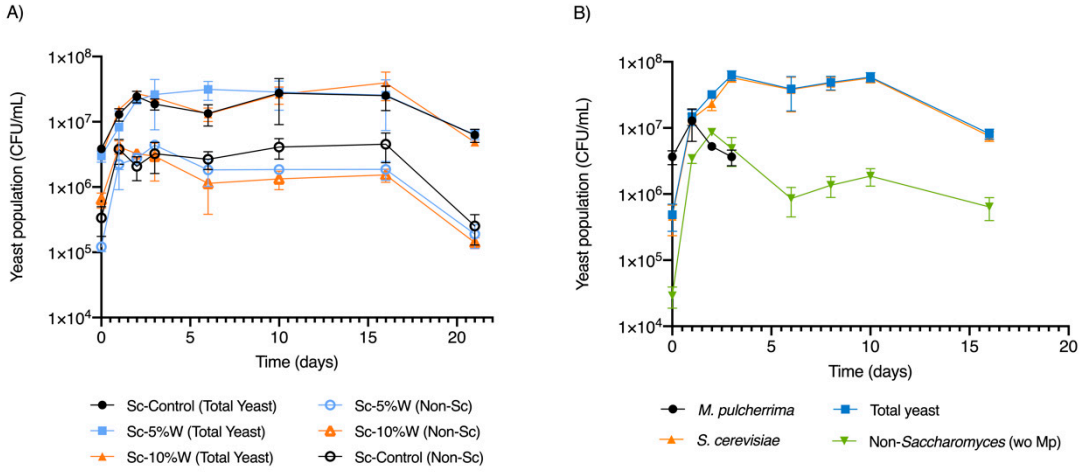

Figure S1. A) Sc-Control, Sc-5%W and Sc-10%W yeast populations during AF. B) Mp-Sc yeast populations during AF. The Sc-Control represents wines fermented solely with *S. cerevisiae*, while Sc-5%W and Sc-10%W indicate wines with a pre-fermentative water addition of 5% and 10%, respectively. The Mp+Sc wines depict sequential fermentation with *M. pulcherrima* and *S. cerevisiae*. Means accompanied by standard deviations (SD) based on three replicates (n=3).

Table S1. Maximal Consumption Rate (g/L/day) and days to consume 50% of sugars (T50%). The Sc-Control represents wines fermented solely with *S. cerevisiae*, while Sc-5%W and Sc-10%W indicate wines with a pre-fermentative water addition of 5% and 10%, respectively. The Mp+Sc wines depict sequential fermentation with *M. pulcherrima* and *S. cerevisiae*

	Sc-Control	**Sc-5%W**	**Sc-10%W**	**Mp+Sc**
Max. Consumption Rate (g/L/day)	13.61 ± 0.49 ^{b}	13.37 ± 0.32 ^{ab}	12.37 ± 0.06 ^{a}	26.20 ± 0.62 ^{c}
T 50% (days)	5.44 ± 0.02 ^{b}	5.45 ± 0.07 ^{b}	5.69 ± 0.04 ^{c}	3.75 ± 0.04 ^{a}

Different lowercase letters indicate the existence of significant difference between the samples ($p < 0.05$). Data are expressed as the mean of three experimental replicates ± standard deviation.

Table S2. Low-molecular-mass phenolic compounds in wines (mg/L). The Sc-Control represents wines fermented solely with *S. cerevisiae*, while Sc-5%W and Sc-10%W indicate wines with a pre-fermentative water addition of 5% and 10%, respectively. The Mp+Sc wines depict sequential fermentation with *M. pulcherrima* and *S. cerevisiae*.

	Sc-Control	**Sc-5%W**	**Sc-10%W**	**Mp+Sc**
Hydroxybenzoic acids and derivatives				
Gallic acid	1.01 ± 0.23 ^{ab}	0.87 ± 0.09 ^{ab}	0.59 ± 0.13 ^{a}	1.23 ± 0.23 ^{b}
Protocatechuic acid	0.86 ± 0.18 ^{ab}	1.32 ± 0.14 ^{b}	0.78 ± 0.18 ^{a}	1.34 ± 0.27 ^{b}
Σ Hydroxybenzoic acids and derivatives	*1.88* ± 0.40 ^{ab}	*2.19* ± 0.22 ^{ab}	*1.37* ± 0.32 ^{a}	*2.57* ± 0.48 ^{b}
Hydroxycinnamic acids and derivatives				
Trans-caftaric acid	1.05 ± 1.82	2.42 ± 0.25	0.75 ± 1.29	2.48 ± 0.62
Trans-coutaric acid	0.59 ± 0.18	0.66 ± 0.25	0.49 ± 0.15	0.69 ± 0.27
Cis-coutaric acid	0.95 ± 0.29	0.66 ± 0.31	0.93 ± 0.27	1.24 ± 0.16
Caffeic acid	1.31 ± 0.16 ^{b}	1.10 ± 0.19 ^{ab}	0.70 ± 0.08 ^{a}	0.78 ± 0.18 ^{a}
Hexose ester of trans p-coumaric acid	0.06 ± 0.01	0.09 ± 0.01	0.04 ± 0.01	0.08 ± 0.04
Σ Hydroxycinnamic acids and derivatives	*3.96* ± 2.26	*4.94* ± 0.68	*2.90* ± 1.02	*5.27* ± 0.48
Phenolic alcohols				
Tyrosol	0.94 ± 0.04	0.82 ± 0.08	0.81 ± 0.06	0.85 ± 0.07
Flavanols				
Catechin	1.89 ± 0.57	2.17 ± 0.29	2.13 ± 0.02	2.07 ± 0.37
Epicatechin	8.30 ± 0.70 ^{b}	6.60 ± 0.32 ^{a}	6.16 ± 0.14 ^{a}	9.47 ± 0.18 ^{c}
Procianidin 1	0.97 ± 0.21	0.85 ± 0.23	0.56 ± 0.11	0.87 ± 0.24
Procianidin 2	0.95 ± 0.22	0.83 ± 0.23	0.61 ± 0.07	1.03 ± 0.16
Procianidin 3	1.95 ± 0.15 ^{c}	1.51 ± 0.25 ^{c}	1.17 ± 0.07 ^{b}	1.84 ± 0.03 ^{a}
Procianidin 4	0.26 ± 0.14	0.84 ± 0.17	0.56 ± 0.08	0.61 ± 0.04
Σ Flavanols	*14.33* ± 2.19 ^{ab}	*12.80* ± 0.41 ^{ab}	*11.18* ±0.19 ^{a}	*15.89* ± 0.76 ^{b}
Flavonols				
Astibilin	3.23 ± 0.99	2.54 ± 0.11	2.17 ± 0.15	3.22 ± 0.02
Quercetin	0.92 ± 0.11 ^{c}	0.40 ± 0.09 ^{b}	0.31 ± 0.05 ^{a}	0.61 ± 0.12 ^{ab}
Quercetin 3-B-D galactoside	1.23 ± 0.45	1.16 ± 0.22	0.47 ± 0.82	1.09 ± 0.32
Quercetina 3-B-D glucoside	0.42 ± 0.13 ^{a}	0.24 ± 0.08 ^{ab}	0.15 ± 0.01 ^{ab}	0.29 ± 0.13 ^{a}
Flavonol 1	0.17 ± 0.14	0.11 ± 0.06	0.04 ± 0.01	0.06 ± 0.01
Flavonol 2	1.86 ± 0.64	1.90 ± 0.12	1.33 ± 0.15	2.15 ± 0.61
Flavonol 3	0.23 ± 0.16	0.22 ± 0.05	0.02 ± 0.04	0.11 ± 0.07
Flavonol 4	1.46 ± 0.14 ^{c}	1.06 ± 0.23 ^{b}	0.70 ± 0.03 ^{a}	0.84 ± 0.03 ^{ab}
Σ Flavonols	*9.51* ± 2.49 ^{b}	*7.63* ± 0.77 ^{ab}	*5.19* ± 0.87 ^{ab}	*8.36* ± 1.09 ^{a}
Total	*39.09* ± 6.79 ^{ab}	*35.77* ± 0.89 ^{ab}	*28.68* ± 2.88 ^{a}	*40.55* ± 2.79 ^{b}

Different lowercase letters indicate the existence of significant difference between the samples ($p < 0.05$). Data are expressed as the mean of three experimental replicates ± standard deviation.

Table S3. Volatile compounds detected in wines (relative area). The Sc-Control represents wines fermented solely with *S. cerevisiae*, while Sc-5%W and Sc-10%W indicate wines with a pre-fermentative water addition of 5% and 10%, respectively. The Mp+Sc wines depict sequential fermentation with *M. pulcherrima* and *S. cerevisiae*.

*Relative area	Sc-Control	Sc-5%W	Sc-10%W	Mp+Sc
		Esters		
Acetate esters				
Ethyl acetate	5.23 ± 0.14	4.10 ± 0.57	4.21 ± 0.22	5.28 ±0.30
Isobutyl acetate	0.31 ± 0.03	0.27 ± 0.03	0.09 ± 0.01	0.37 ± 0.02
Isoamyl acetate	8.01 ± 0.27	5.92 ± 0.24	6.11 ± 0.43	7.33 ± 0.44
Hexyl acetate	3.02 ± 0.20	2.13 ± 0.59	2.39 ± 0.19	1.84 ± 0.11
3-Hexenyl acetate	0.04 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.04 ± 0.01
Heptyl acetate	0.05 ± 0.01	0.04 ± 0.02	0.04 ± 0.01	0.05 ± 0.01
2-Phenethyl acetate	5.67 ± 0.42	5.35 ± 0.62	4.46 ± 0.40	6.37 ± 0.65
Ethyl esters				
Ethyl butanoate	0.58 ± 0.02	0.38 ± 0.03	0.41 ± 0.01	0.54 ± 0.02
Ethyl hexanoate	10.47 ± 0.73	7.15 ± 2.17	7.82 ± 0.43	8.26 ± 0.60
Ethyl heptanoate	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01	0.02 ±0.01
Ethyl octanoate	30.22 ± 0.68	20.13 ± 5.85	20.03 ± 2.06	25.91 ± 2.13
Ethyl 7-octenoate	0.11 ± 0.01	0.09 ± 0.02	0.07 ± 0.01	0.10 ± 0.01
Ethyl nonanoate	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.04 ± 0.01
Ethyl decanoate	13.27 ± 2.04	10.58 ± 2.16	8.59 ± 0.59	9.84 ± 2.11
Ethyl 4E-decenoate	0.04 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.08 ± 0.01
Ethyl dodecanoate	4.93 ± 1.23	5.19 ± 0.33	2.71 ± 0.24	3.51 ± 0.88
Ethyl tetradecanoate	0.15 ± 0.08	0.15 ± 0.03	0.10 ± 0.01	0.20 ± 0.02
Ethyl hexadecanoate	0.16 ± 0.10	0.25 ± 0.01	0.22 ± 0.01	0.36 ±0.02
Other esters				
Isoamyl octanoate	0.32 ± 0.08	0.42 ± 0.06	0.42 ± 0.05	0.48 ± 0.04
Isoamyl decanoate	0.16 ± 0.04	0.20 ± 0.01	0.17 ± 0.01	0.10 ± 0.02
Isobutyl hexanoate	0.04 ± 0.01	0.04 ± 0.01	0.03 ± 0.01	0.05 ± 0.01
Isobutyl octanoate	0.07 ± 0.02	0.06 ± 0.01	0.05 ± 0.01	0.10 ± 0.01
Butyl 9-decenoate	0.04 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	0.14 ± 0.01
Methyl octanoate	0.15 ± 0.01	0.13 ± 0.01	0.13 ± 0.03	0.16 ± 0.01
Methyl decanoate	0.12 ± 0.04	0.14 ± 0.02	0.10 ± 0.03	0.08 ± 0.02
Methyl 4-decenoate	0.04 ± 0.01	0.04 ± 0.01	0.02 ± 0.01	0.07 ± 0.01
Methyl undecanoate	0.06 ± 0.01	0.09 ± 0.02	0.04 ± 0.01	0.15 ± 0.03
		Alcohols		
Fusel alcohols				
Isobutanol	0.50 ± 0.02	1.51 ± 0.20	1.38 ± 0.11	2.35 ± 0.15
Isoamyl alcohol	11.65 ± 0.14	10.98 ± 1.16	11.03 ± 0.70	13.79 ± 1.06
Isohexanol	0.05 ± 0.03	0.04 ± 0.02	0.03 ± 0.01	0.05 ± 0.01
1.3-Methyl-4-penten-1-ol	0.14 ± 0.01	0.12 ± 0.01	0.12 ± 0.01	0.09 ± 0.01
1-Hexanol	0.66 ± 0.02	0.66 ± 0.07	0.67 ± 0.04	0.71 ± 0.03
1-Heptanol	0.13 ± 0.02	0.12 ± 0.01	0.12 ± 0.02	0.22 ± 0.04
2.3-Butanediol	0.21 ± 0.12	0.11 ± 0.05	0.04 ± 0.02	0.21 ± 0.02
1-Octanol	0.10 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	0.12 ± 0.01
1-decanol	0.09 ± 0.01	0.10 ± 0.01	0.10 ± 0.01	0.11 ± 0.01
2 -phenylethanol	10.75 ± 0.86	9.71 ± 1.46	9.50 ± 0.34	15.72 ± 1.75
		Acids		
Acetic acid	0.65 ± 0.08	0.46 ± 0.21	0.37 ± 0.02	0.62 ± 0.09
SCFA				
Isobutyric acid	0.05 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.09 ± 0.01
Isovaleric acid	0.16 ± 0.02	0.16 ± 0.03	0.12 ± 0.01	0.20 ± 0.01
MCFA				
Hexanoic acid	1.33 ± 0.08	1.29 ± 0.23	1.12 ± 0.12	1.09 ± 0.11
Octanoic acid	7.22 ± 0.50	7.26 ± 0.87	6.75 ± 0.77	6.29 ± 0.61

Decanoic acid	5.08 ± 0.44	5.34 ± 0.84	5.09 ± 0.64	2.26 ± 0.04
Aldehydes				
3-methyl-benzaldehyde	0.19 ± 0.01	0.19 ± 0.02	0.23 ± 0.03	0.29 ± 0.02
4-ethyl-benzaldehyde	0.05 ± 0.01	0.05 ± 0.01	0.04 ± 0.01	0.06 ± 0.01
Ketones				
Isovalerone	0.11 ± 0.01	0.07 ± 0.03	0.09 ± 0.01	0.10 ± 0.01
2-Undecanone	0.03 ± 0.02	0.02 ± 0.01	0.02 ± 0.01	0.03 ± 0.01
Terpenes				
Mesitylene	0.32 ± 0.13	0.23 ± 0.12	0.27 ± 0.02	0.23 ± 0.06
Benzocyclobutene	0.12 ± 0.02	0.08 ± 0.03	0.08 ± 0.01	0.09 ± 0.01
o-Cymene	0.04 ± 0.02	0.10 ± 0.07	0.07 ± 0.05	0.13 ± 0.01
Durene	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.04 ± 0.01
Linalol	0.07 ± 0.01	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01
Terpinen-4-ol	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.05 ± 0.01
Caryophyllene	0.05 ± 0.02	0.05 ± 0.01	0.05 ± 0.01	0.06 ± 0.01
Nerolidol	0.04 ± 0.01	0.04 ± 0.01	0.05 ± 0.01	0.05 ± 0.01
Viridiflorene	0.03 ± 0.02	0.04 ± 0.01	0.03 ± 0.01	0.04 ± 0.01

Different lowercase letters indicate the existence of significant difference between the samples ($p < 0.05$). Data are expressed as the mean of three experimental replicates ± standard deviation.