Supplementary Materials

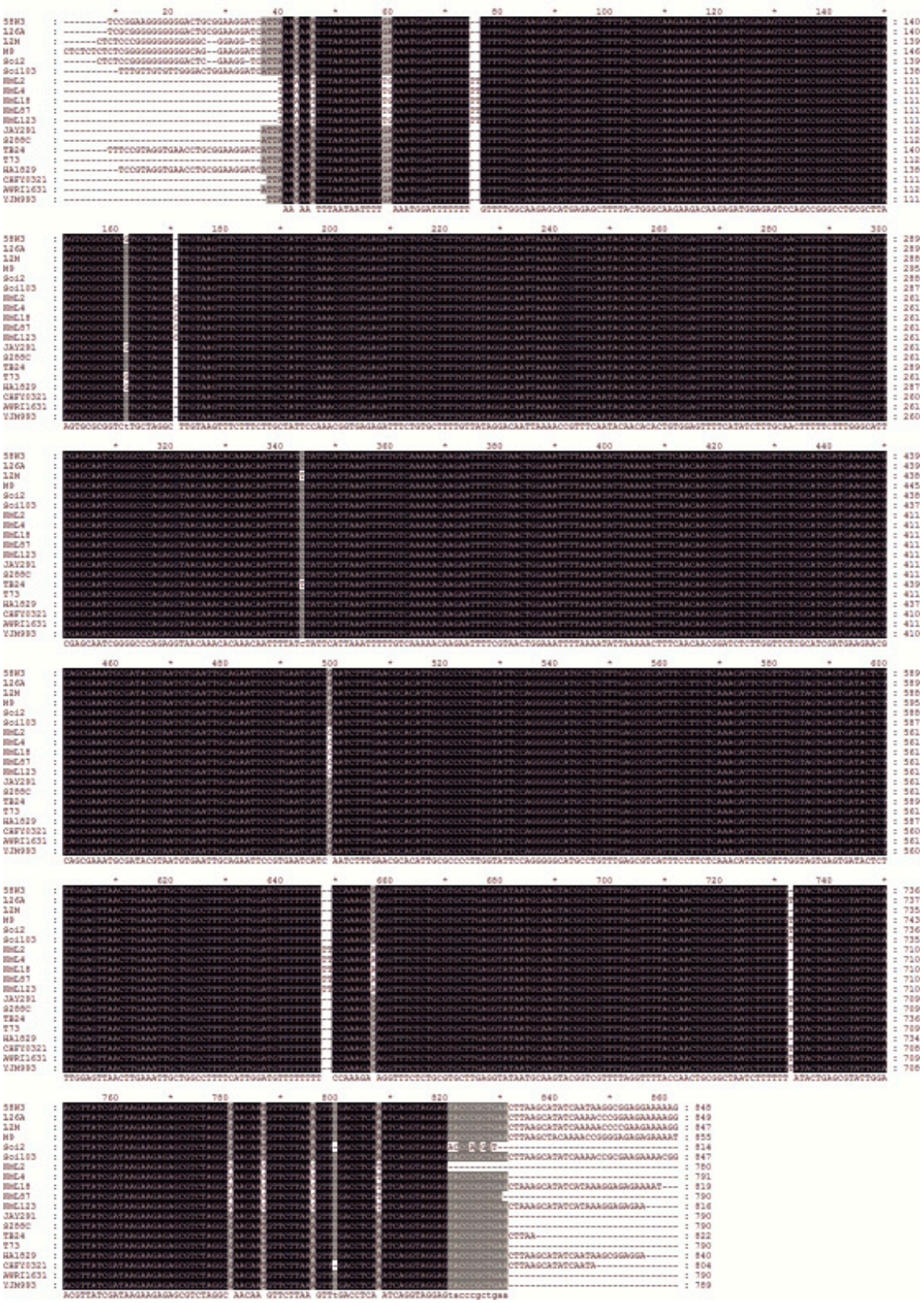


Figure S1. Multiple sequence alignment of ITS rDNAs of Agiorgitiko and Moschofilero yeast strains with BLAST-NCBI retrieved ITS rDNAs of different *S. cerevisiae* yeast strains. L2M (GenBank KP723678), L26A (GenBank KP723679), M9 (GenBank KP723680), Soi2 (GenBank KP723681), Soi103 (GenBank KP723682). KML2 (GenBank KF486910), KML4 (GenBank KF486909), KML18 (GenBank KF486908), KML87 (GenBank KF486911) and KML123 (GenBank KF486912) were isolated from the 'terroir' of the

Montepulciano d'Abruzzo 'Colline Teramane', [61], S288C strain is the reference genome sequenced *S. cerevisiae* strain while T73, AWRI1631, YJM993 and JAY291 represent additional genome sequenced yeast strains. TB24 was isolated from tree-saps and flowers at Ise-Shima area (GenBank: AB910265). HA1829 isolated from Austrian vine-growing regions ([62], GenBank: AM262826), while CHFY0321 represents a flocculent *Saccharomyces bayanus* × *Saccharomyces cerevisiae* hybrid which was generated by protoplast fusion between *Saccharomyces cerevisiae* and *Saccharomyces bayanus* ([63], Genbank: EU719073).

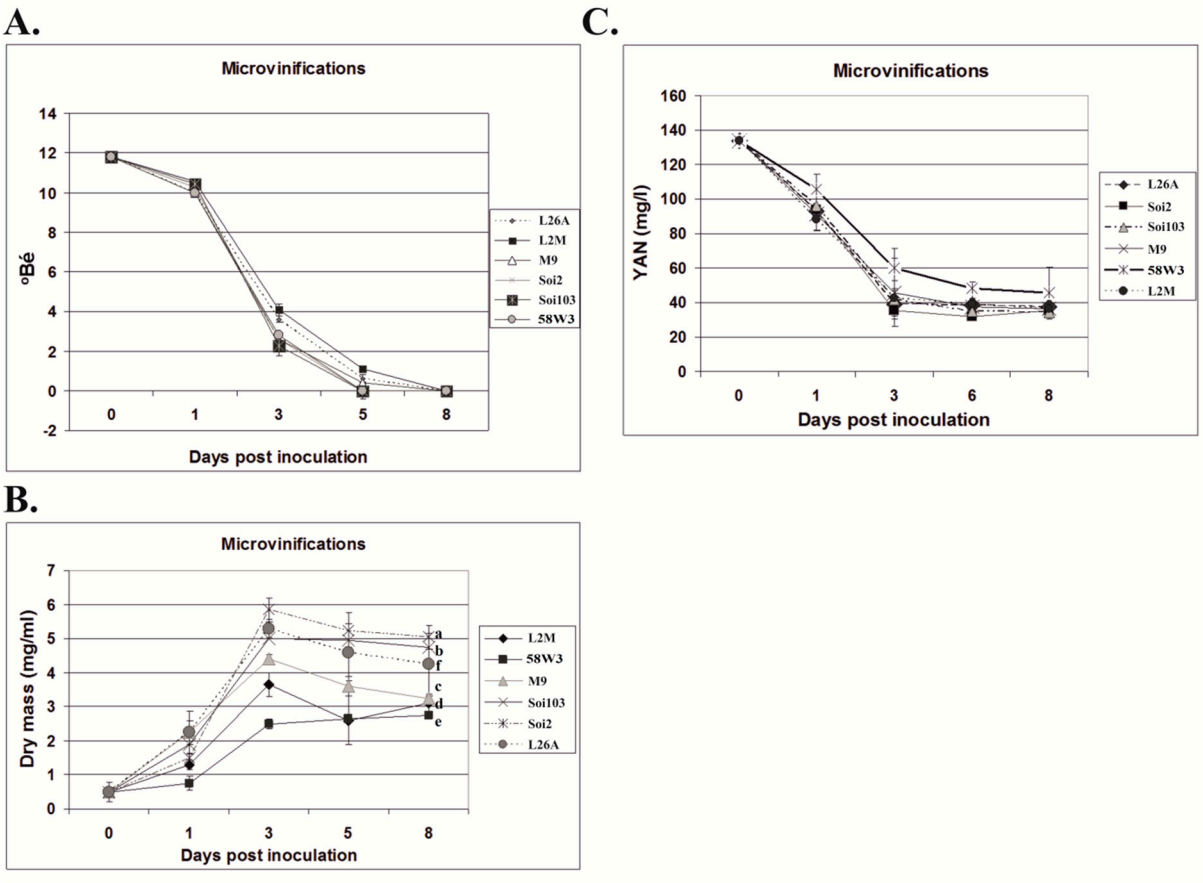


Figure S2. Fermentation kinetics and characteristics of experimental wines using several indigenous Agiorgitiko and Moschofilero S. cerevisiae strains. 58W3 was used as a reference strain. (**A**) Sugar consumption slopes (oBé at 20oC). (**B**) Dry mass weight gain. (**C**) YAN consumption. Data are expressed as mean ±SD of 3 experimental replicates. Letters indicate statistical significance (One way ANOVA followed by the Tukey's post hoc test).

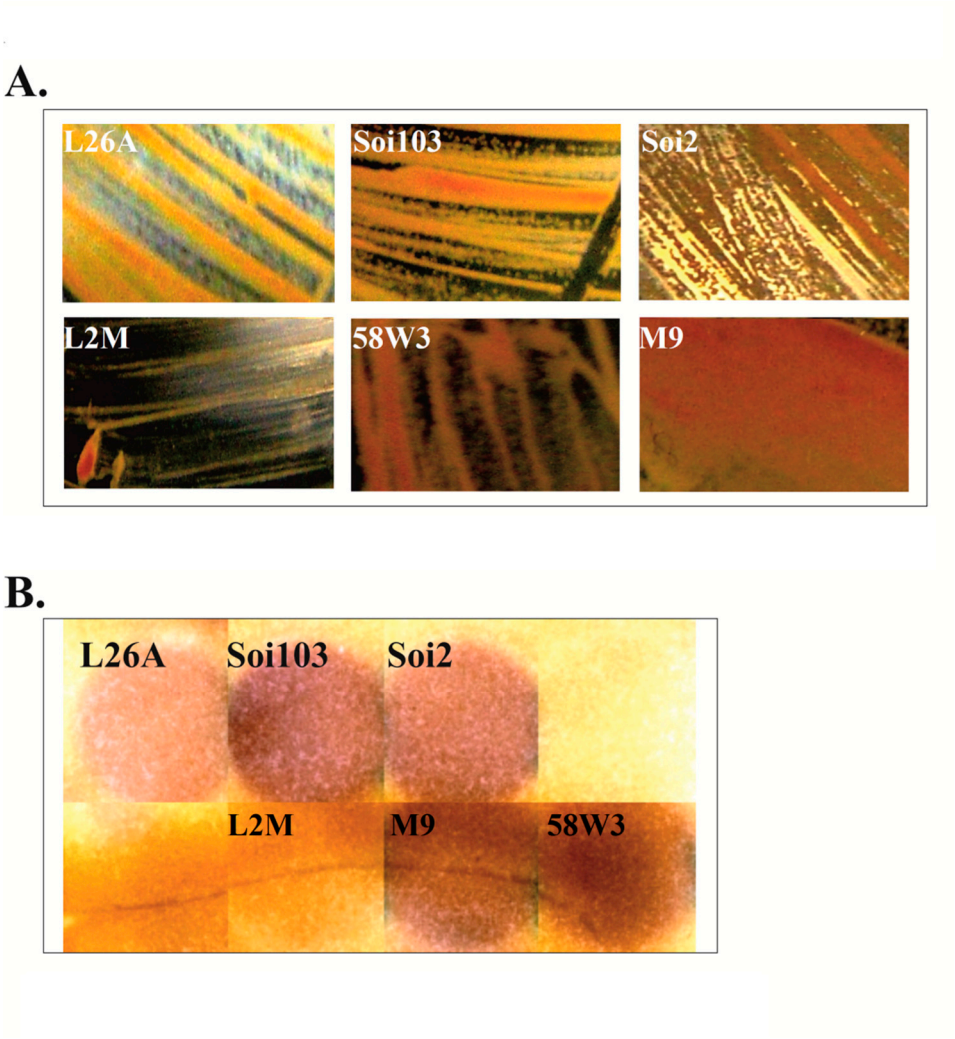


Figure S3. H2S production assays of several indigenous Agiorgitiko and Moschofilero *S. cerevisiae* strains. 58W3 was used as a reference strain. (**A**) BiGGY agar method. (**B**) AgNO3 membrane overlay method.

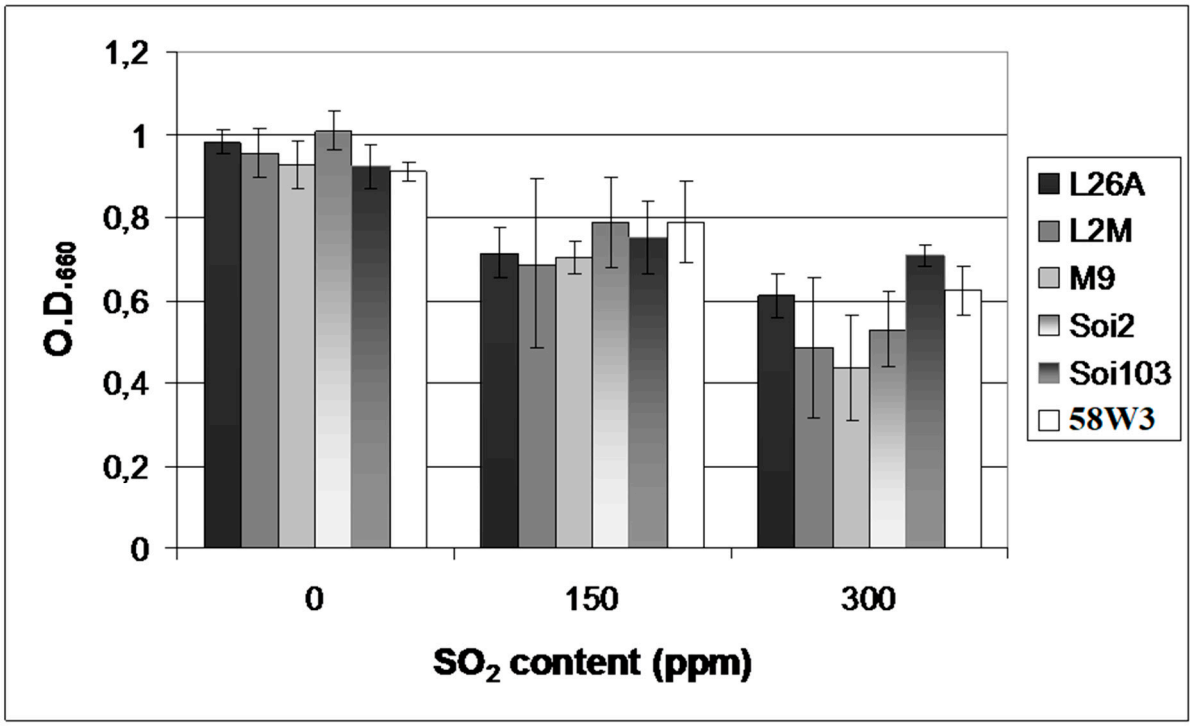
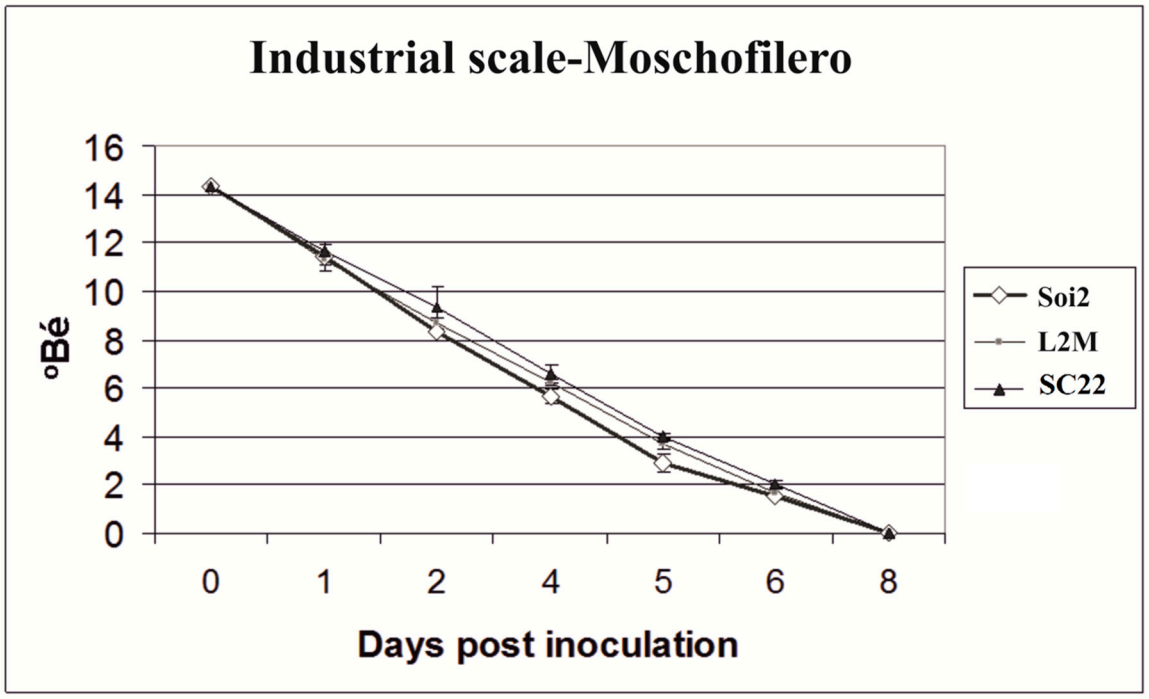


Figure S4. Ability to grow of several indigenous Agiorgitiko and Moschofilero *S. cerevisiae* strains in the presence of 0, 150 and 300 ppm of SO2. Cell density was measured in 660 nm. 58W3 was used as reference strain. Data are expressed as mean ±SD of 3 experimental replicates.

A.



B.

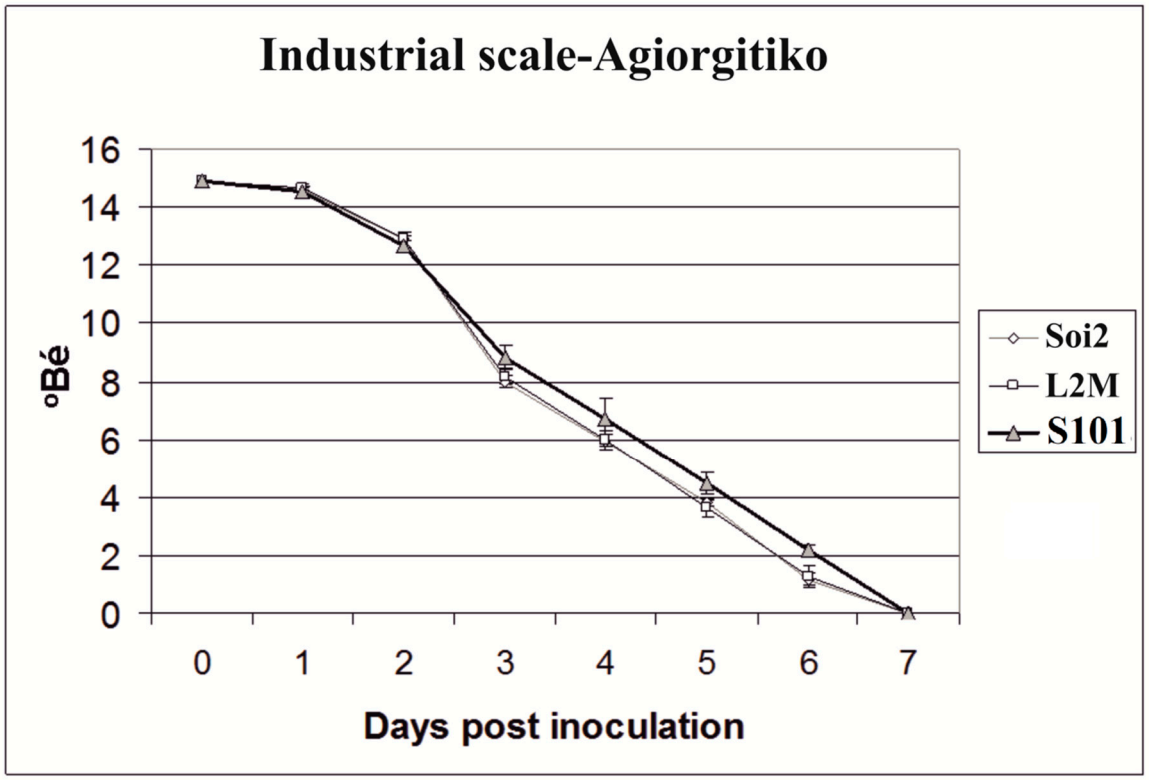


Figure S5. Sugar consumption slopes (oBé at 20oC) of industrial vinifications of Moschofilero (**A**) and Agiorgitiko (**B**) grape musts which were fermented with the L2M and Soi2 S. cerevisiae strains. SC22 and STG S101 were used as a reference strains for Moschofilero and Agiorgitiko respectively. Data are expressed as mean ±SD of 3 experimental replicates.

Table S1. Oenological characteristics of experimental wines using several indigenous Agiorgitiko and Moschofilero *S. cerevisiae* strains. 58W3 was used as a reference strain. Data are expressed as mean ±SD of 3 experimental replicates. Letters indicate statistical significance (One way ANOVA followed by the Tukey's post hoc test).

Yeast Strain	Average Ethanol Content (% *v*/*v*) ± SD	Average volatile acidity (g/l) ±SD	Average pH±SD	Average Total Acidity (g/l) ±SD	Average Reducing Sugars (g/l) ±SD	Average Free SO_2 (ppm) ±SD	Average Residual YAN (mg N/l) ±SD	Average Density (20/20) ±SD
58W3	13.26 ± 0.60	0.20 ± 0.09	3.46 ± 0.41	5.09 ± 0.94	2.04 ± 0.07	4.07 ± 2.93	45.76 ± 14.61	0.9946 ± 0.0009
L2M	13.00 ± 0.67	0.31 ± 0.13	3.48 ± 0.29	5.10 ± 0.81	2.01 ± 0.12	2.53 ± 1.20[a]	36.48±2.40	0.9946 ± 0.0006
L26A	13.30 ± 0.19	0.70 ± 0.19[a]	3.55 ± 0.07	4.76 ± 0.12	3.85 ± 1.25	5.13 ± 0.65	37.36±0.97	0.9945 ± 0.0001
M9	12.83 ± 0.09	0.65 ± 0.09[b]	3.61 ± 0.02	4.85 ± 0.56	0.20 ± 0.03[a]	5.33 ± 0.42	36.22±3.75	0.9949 ± 0.0007
Soi2	13.27 ± 0.55	0.30 ± 0.17	3.59 ± 0.33	5.05 ± 0.86	0.16 ± 0.01[b]	5.47 ± 2.75	35.29±4.80	0.9942 ± 0.0003
Soi103	12.93 ± 0.16	0.24 ± 0.16	3.42 ± 0.18	4.51 ± 0.57	2.98 ± 1.13	7.80 ± 1.05	34.46 ± 0.72	0.9939 ± 0.0001

Table S2. Ethanol tolerance assays of several indigenous Agiorgitiko and Moschofilero *S. cerevisiae* strains with the maximum ethanol production method. 58W3 was used as a reference strain. Data are expressed as mean ±SD of 3 experimental replicates.

Yeast Strain	**Mean Maximum Ethanol Tolerance (% *v*/*v*) ±SD**
58W3	14.80 ± 0.53
L2M	14.77 ± 0.51
L26A	14.63 ± 0.84
M9	14.43 ± 0.82
Soi2	15.10 ± 1.49
Soi103	14.30 ± 1.05

Table S3. Oenological characteristics of industrial vinification of Moschofilero grape must which was fermented with L2M and Soi2 *S. cerevisiae* strains. SC22 was used as a reference strain. Data are expressed as mean ±SD of 3 experimental replicates. Letters indicate statistical significance (One way ANOVA followed by the Tukey's post hoc test).

Yeast Strain	**Average Ethanol Content (% v/v) ±SD**	**Average Volatile Acidity (g/l) ±SD**	**Average pH ± SD**	**Average Total Acidity (g/l) ±SD**	**Average Reducing Sugars (g/l) ±SD**	**Average Free SO_2 (ppm) ±SD**	**Average Total SO_2 (ppm) ±SD**	**Average Density (20/20) ±SD**
SC22	12.80 ± 0.10	0.15 ± 0.05	3.21 ± 0.04	5.31 ± 0.15	0.07 ± 0.01[a]	17.34 ± 0.10	64.24 ± 2.65	0.9930 ± 0.0051
L2M	12.80 ± 0.10	0.46 ± 0.12[a]	3.31 ± 0.05	4.87 ± 0.10	0.17 ± 0.08	16.70 ± 0.69	71.28 ± 3.60	0.9928 ± 0.0057
Soi2	12.83 ± 0.12	0.53 ± 0.17[b]	3.14 ± 0.07	5.09 ± 0.16	0.15 ± 0.01	15.83 ± 1.66	58.79 ± 4.18	0.9900 ± 0.0001

Table S4. Oenological characteristics of industrial vinification of Agiorgitiko grape must which was fermented with L2M and Soi2 *S. cerevisiae* strains. STG S101 was used as a reference strain. Data are expressed as mean ±SD of 3 experimental replicates. Letters indicate statistical significance (One way ANOVA followed by the Tukey's post hoc test).

Yeast Strain	Average Ethanol Content (%) ±SD	Average Volatile Acidity (g/l) ±SD	Average pH±SD	Average Total Acidity (g/l) ±SD	Average Reducing Sugars (g/l) ±SD	Average Free SO_2 (ppm) ±SD	Average Total SO_2 (ppm) ±SD	Average Density (20/20) ±SD	Average Colour Density ±SD	Average Hue ±SD
S101	13.97 ± 0.15	0.08 ± 0.10	3.86 ± 0.17	4.50 ± 0.33	0.87 ± 0.06	4.57 ± 2.37	32.47 ± 2.97	0.9893 ± 0.0002	7.2 ± 0.96	0.82 ± 0.09
L2M	14.00 ± 0.00	0.32 ± 0.03	3.76 ± 0.08	5.15±0.18[a]	1.12 ± 0.12[a]	5.54 ± 2.29	33.86 ± 3.20	0.9896 ± 0.0001	7 ± 1.56	0.76 ± 0.14
Soi2	13.93 ± 0.15	0.16 ± 0.08	3.83 ± 0.08	4.13 ± 0.13[b]	0.83 ± 0.08	6.14 ± 3.05	23.93 ± 3.35	0.9892 ± 0.0001	11.2 ± 0.30[a]	0.8 ± 0.10