

Supplementary Materials: Improvement of Malvar Wine Quality by Use of Locally-Selected *Saccharomyces cerevisiae* Strains

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Table S1. Differential physiological, enological and aromatic characteristics of the selected yeast strains assayed in this work CLI 889 and CLI 892 (CECT 13145). Commercial yeast strains *S. cerevisiae bayanus* CLI 878 (Zymasil complex, AEB, Brescia, Italy) and *S. cerevisiae* CLI 879 (Zymasil complex, AEB, Brescia, Italy) were used as control. +, positive; -, negative; w, weakly positive; nd, not detected; nt, not tested. SCFA, Small Chain Fatty Acids; MCFA, Medium Chain Fatty Acids.

Characteristic	CLI 878	CLI 879	CLI 892	CLI 889
Fermentation of				
D-Glucose	+	+	+	+
D-Galactose	-	+	-	+
Lactose	-	-	w	w
Maltose	+	+	-	+
Sucrose	+	+	+	+
Melibiose	-	-	w	w
Raffinose	+	+	+	+
Assimilation of				
D-Glucose	+	+	+	+
D-Galactose	-	+	-	+
Lactose	-	-	w	w
Maltose	+	+	-	+
Sucrose	+	+	+	+
Melibiose	-	-	w	w
Raffinose	+	+	+	+
Cadaverine	-	-	-	-
Ethylamine	-	-	-	-
L-Lysine	-	-	-	-
Nitrate	-	-	-	-
Growth:				
Cicloheximide 100 ppm	-	-	-	-
YM broth at 25 °C, 48 h	+	+	+	+
YPD broth at 28 °C, 48 h	+	+	+	+
Cellular reproduction	Asymmetrically by budding	Asymmetrically by budding	Asymmetrically by budding	Asymmetrically by budding
Pseudohyphae or true hyphae formation	Not Formed	Not Formed	Not Formed	Not Formed
Sporulation	Yes (1-4)	Yes (1-2)	Yes (1-2)	Yes (2-4)
Killer phenotype	K-neutral	K-neutral	K+	K-neutral
Fermentative capacity	12.6	12.8	12.5	12.6
Volatile acidity (g/L; acetic acid)	0.7	0.4	0.5	0.4
Titrateable acidity (g/L; tartaric acid)	1.89	2.75	1.63	2.36
Organic acids (g/L)				
Citric acid	0.19	0.2	0.2	0.23
Malic acid	0.85	0.87	0.94	1.05
Lactic acid	0.28	0.37	0.36	0.37
Acetic acid	0.6	0.3	0.54	0.43
Succinic acid	0.48	0.47	0.5	0.42
Glycerol (g/L)	8.6	7	4.4	7.1
2,3-butanediol (mg/L)	805.1	820	518	375.3
Acetaldehyde (mg/L)	nd	nd	60.9	nd
Acetoin (mg/L)	15.3	17.3	nd	6.3
Ethyl acetate (mg/L)	77.3	44.2	22.7	39.5
Higher major alcohols (mg/L)				
1-Propanol	44.5	48.7	26.6	38.3
Isobutanol	66.5	87.7	39.8	87.9
Isoamyl alcohols	188.8	173.1	113	194.1

Higher minor alcohols (mg/L)				
1-Hexanol	0.2	0.8	0.9	1.2
2-Phenylethanol	13.9	12.9	11.2	11.9
Higher alcohol acetates (mg/L)				
Isobutyl acetate	nd	0.09	0.06	0.02
Isoamyl acetate	0.43	0.94	1.55	3.01
Hexyl acetate	0.02	0.09	0.16	0.26
Phenyl ethyl acetate	0.54	0.28	0.55	0.96
Fatty acid esters (mg/L)				
Ethyl butyrate	0.07	0.11	0.32	0.41
Ethyl hexanoate	0.18	0.33	0.85	0.84
Ethyl octanoate	0.14	0.31	1.42	0.88
Ethyl decanoate	0.03	0.05	0.46	0.28
Ethyl lactate (mg/L)	nd	0.26	0.09	0.09
Diethyl succinate (mg/L)	0.07	0.12	0.09	0.06
SCFA (mg/L)				
Isobutyric acid	0.18	0.33	0.31	0.44
Butyric acid	0.36	0.31	0.65	0.76
Isovaleric acid	0.2	0.36	0.31	0.37
MCFA (mg/L)				
Hexanoic acid	1.61	1.92	2.44	2.86
Octanoic acid	3.07	4.3	10.31	10.14
Decanoic acid	0.6	1.94	3.73	4.14
Concentration of aminoacids in Malvar wines (mg/L)				
L-Asparagine ASN	84.45	nt	11.71	52.674
L-Aspartic acid ASP	nt	nt	8.45	7.84
L-Glutamic acid GLU	78.65	nt	35.65	54.24
Glycine GLY	25.2	nt	168.19	181.01
L-Threonine THR	1890.6	nt	698.33	791.57
L-Arginine AGR	333.7	nt	776.62	912.60
DL-Alanine ALA	123.5	nt	259.81	315.38
γ -amino butyric acid GABA	11.95	nt	6.23	6.03
Proline PRO	1100.95	nt	1027.85	1125.23
DL-Methionine MET	30	nt	1.83	0.74
L-Valine VAL	5.4	nt	3.02	3.02
DL-Tryptophan TRP	nt	nt	698.33	791.57
L-Isoleucine ILE	16.6	nt	14.44	8.15
L-Phenylalanine PHE	0.46	nt	0.41	1.70
L-Leucine LEU	6.1	nt	1.83	2.19
L-Cysteine CYS	nt	nt	3.62	7.43
DL-Ornithine ORN	12.1	nt	2.26	1.91
L-Lysine LYS	1.13	nt	0.46	0.44
L-Histidine HIS	4.7	nt	0.30	2.32
L-Tyrosine TYR	2.55	nt	2.18	7.01