

Table S1. Volatile compounds produced by the ten different *Saccharomyces* strains in 1 L fermentation

Volatile compounds	G 4	G 354	G 450	G 487	G 502	G 520	CLI 70	CLI 275	CLI 1056	CLI 1109	S-04
Higher alcohols											
1-propanol	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Isobutanol	3.70 ± 0.31 ^e	15.29 ± 0.14 ^b	10.77 ± 1.76 ^{cd}	14.26 ± 0.74 ^{bc}	7.58 ± 0.50 ^{de}	25.71 ± 0.90 ^a	14.42 ± 1.87 ^{bc}	11.17 ± 0.46 ^{bcd}	23.78 ± 1.82 ^a	24.68 ± 1.59 ^a	23.54 ± 2.78 ^a
1-butanol	nd	nd	nd	nd	nd	0.02 ± 0.00 ^b	nd	nd	nd	nd	0.03 ± 0.00 ^a
Isoamyl alcohol	29.77 ± 3.66 ^f	69.38 ± 0.58 ^b	53.39 ± 1.38 ^{de}	62.07 ± 1.58 ^{bcd}	51.53 ± 8.59 ^e	97.73 ± 2.11 ^a	58.32 ± 0.75 ^{cde}	63.80 ± 2.15 ^{bcd}	70.81 ± 1.93 ^b	88.41 ± 2.45 ^a	68.73 ± 5.45 ^{bc}
1-hexanol	0.05 ± 0.00 ^{bc}	0.08 ± 0.00 ^c	0.08 ± 0.00 ^a	0.07 ± 0.02 ^{ab}	0.05 ± 0.00 ^c	0.05 ± 0.00 ^c	0.05 ± 0.00 ^{bc}	0.07 ± 0.00 ^{ab}	0.06 ± 0.01 ^{bc}	0.05 ± 0.00 ^c	0.06 ± 0.00 ^{bc}
Cis-3-hexenol	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methionol	0.41 ± 0.02 ^c	0.05 ± 0.02 ^{de}	0.13 ± 0.00 ^{de}	0.09 ± 0.03 ^{de}	0.86 ± 0.01 ^a	0.79 ± 0.03 ^a	0.02 ± 0.00 ^e	0.61 ± 0.06 ^b	0.09 ± 0.01 ^{de}	0.17 ± 0.11 ^d	0.82 ± 0.09 ^a
Benzyl alcohol	0.01 ± 0.00 ^a	nd	0.01 ± 0.00 ^{ab}	nd	nd	0.01 ± 0.00 ^{ab}	nd	0.00 ± 0.00 ^{bc}	0.01 ± 0.00 ^{ab}	0.00 ± 0.00 ^{bc}	nd
β-phenylethanol	2.98 ± 0.37 ⁱ	9.98 ± 0.98 ^b	11.57 ± 0.11 ^{gh}	20.91 ± 0.57 ^{de}	16.39 ± 0.67 ^{ef}	52.99 ± 1.56 ^a	11.70 ± 0.99 ^{gh}	23.07 ± 0.25 ^d	37.46 ± 2.58 ^c	16.10 ± 0.06 ^g	45.91 ± 4.09 ^b
Total Higher alcohols	36.93 ± 4.37	94.75 ± 1.73	75.93 ± 3.27	97.39 ± 2.94	76.41 ± 9.77	177.29 ± 4.60	84.50 ± 3.61	98.72 ± 2.92	132.21 ± 6.34	129.41 ± 4.22	139.08 ± 12.41
Esters											
Ethyl isobutirate	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	0.40 ± 0.15
Ethyl butirate	nd	0.15 ± 0.01 ^{abc}	0.13 ± 0.01 ^{bcd}	0.06 ± 0.06 ^{de}	0.22 ± 0.01 ^a	0.16 ± 0.00 ^{ab}	0.07 ± 0.07 ^{cde}	0.15 ± 0.01 ^{abc}	nd	0.21 ± 0.02 ^{ab}	0.13 ± 0.00 ^{bcd}
Ethyl isovalerate	0.07 ± 0.00 ^f	0.20 ± 0.01 ^a	0.18 ± 0.01 ^{bc}	0.17 ± 0.00 ^c	0.14 ± 0.00 ^d	0.19 ± 0.01 ^{ab}	0.14 ± 0.00 ^d	0.14 ± 0.01 ^d	0.09 ± 0.00 ^e	0.19 ± 0.00 ^{ab}	0.19 ± 0.00 ^{ab}
Isoamyl acetate	0.22 ± 0.01 ^e	0.61 ± 0.08 ^{de}	0.42 ± 0.17 ^e	0.40 ± 0.19 ^e	1.30 ± 0.10 ^c	2.34 ± 0.06 ^a	0.89 ± 0.17 ^{cd}	0.65 ± 0.04 ^{de}	0.40 ± 0.01 ^e	1.90 ± 0.32 ^{ab}	1.81 ± 0.26 ^b
Ethyl hexanoate	0.09 ± 0.02 ^c	0.01 ± 0.01 ^c	0.16 ± 0.00 ^a	0.09 ± 0.07 ^{abc}	0.03 ± 0.01 ^c	0.02 ± 0.00 ^c	0.07 ± 0.06 ^{abc}	0.01 ± 0.00 ^c	0.15 ± 0.01 ^{ab}	0.60 ± 0.03 ^{bc}	0.03 ± 0.00 ^c
Hexyl acetate	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethyl lactate	0.06 ± 0.05 ^d	0.14 ± 0.01 ^{bc}	0.06 ± 0.01 ^d	0.04 ± 0.00 ^d	0.18 ± 0.04 ^{ab}	0.13 ± 0.02 ^{bc}	0.03 ± 0.01 ^d	0.05 ± 0.01 ^d	0.06 ± 0.01 ^d	0.12 ± 0.00 ^c	0.19 ± 0.01 ^a

Ethyl octanoate	0.13 ± 0.02 ^{bcd}	0.15 ± 0.00 ^{abcd}	0.08 ± 0.07 ^d	0.11 ± 0.00 ^{cd}	0.21 ± 0.00 ^a	0.18 ± 0.00 ^{ab}	0.15 ± 0.01 ^{abcd}	0.16 ± 0.01 ^{abc}	0.09 ± 0.01 ^{cd}	0.21 ± 0.02 ^a	0.13 ± 0.00 ^{bcd}
3OH-ethyl butyrate	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Diethyl succinate	0.15 ± 0.15 ^b	nd	nd	nd	nd	nd	0.39 0± 0.01 ^a	nd	nd	nd	nd
2-phenylethyl acetate	0.01 ± 0.00 ^d	0.02 ± 0.00 ^d	0.02 ± 0.01 ^{bc}	0.02 ± 0.00 ^{cd}	0.03 ± 0.00 ^{ab}	0.03 ± 0.00 ^{ab}	0.03 ± 0.00 ^{ab}	0.03 ± 0.00 ^{ab}	0.03 ± 0.00 ^{ab}	0.03 ± 0.00 ^a	0.01 ± 0.00 ^e
Total Esters	0.74 ± 0.25	1.27 ± 0.12	1.04 ± 0.27	0.89 ± 0.34	2.11 ± 0.13	3.06 ± 0.09	1.77 ± 0.33	1.19 ± 0.07	0.82 ± 0.04	2.74 ± 0.40	2.89 ± 0.43
Acids											
Isobutyric acid	nd	nd	0.86 ± 0.01 ^b	0.92 ± 0.02 ^b	nd	0.88 ± 0.88 ^b	nd	1.18 ± 0.00 ^{ab}	1.72 ± 0.06 ^a	nd	nd
Butyric acid	nd	nd	2.27 ± 0.15 ^a	2.33 ± 0.04 ^a	nd	2.35 ± 0.10 ^b	nd	2.37 ± 0.05 ^a	2.35 ± 0.02 ^a	nd	nd
Isovaleric acid	3.24 ± 0.09 ^f	6.09 ± 0.07 ^{bc}	3.74 ± 0.06 ^{ef}	3.81 ± 0.02 ^{ef}	5.65 ± 0.17 ^{bcd}	6.38 ± 0.13 ^b	5.19 ± 0.04 ^{cd}	5.95 ± 0.06 ^{bc}	4.78 ± 0.21 ^{de}	5.34 ± 1.07 ^{bcd}	9.81 ± 0.59 ^a
Hexanoic acid	0.81 ± 0.03 ^e	2.31 ± 0.03 ^{bc}	1.64 ± 0.14 ^d	nd	2.57 ± 0.12 ^b	2.68 ± 0.05 ^{ab}	2.32 ± 0.44 ^{bc}	1.90 ± 0.17 ^{cd}	0.75 ± 0.01 ^e	3.09 ± 0.22 ^a	1.56 ± 0.07 ^d
Octanoic acid	3.15 ± 0.18 ^f	5.96 ± 0.01 ^{cd}	5.71 ± 0.69 ^d	4.18 ± 0.20 ^{ef}	7.75 ± 0.19 ^{ab}	8.63 ± 0.03 ^a	7.15 ± 0.09 ^{bc}	6.01 ± 0.36 ^{cd}	4.22 ± 0.05 ^{ef}	8.74 ± 0.67 ^a	5.51 ± 0.35 ^{de}
Decanoic acid	0.63 ± 0.06 ^{bc}	0.38 ± 0.06 ^{bc}	0.54 ± 0.16 ^{bc}	0.45 ± 0.11 ^{bc}	0.76 ± 0.40 ^{bc}	2.57 ± 0.52 ^a	0.42 ± 0.03 ^{bc}	0.80 ± 0.00 ^{bc}	0.55 ± 0.01 ^{bc}	1.11 ± 0.74 ^b	0.16 ± 0.02 ^c
Total acids	6.25 ± 0.36	14.74 ± 0.18	14.75 ± 1.20	11.68 ± 0.39	16.74 ± 0.89	22.33 ± 2.80	15.08 ± 1.60	18.21 ± 0.65	14.38 ± 0.35	18.28 ± 2.71	17.05 ± 1.03
Aldehydes/cetones											
Diacetyl	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Acetoin	0.53 ± 0.09 ^b	nd	nd	nd	nd	nd	1.69 ± 0.19 ^a	nd	nd	nd	0.67 ± 0.43 ^b
Furfural	0.02 ± 0.02	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzaldehyde	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Phenyl acetaldehyde	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total aldehydes/cetones	0.55 ± 0.11	nd	0.00 ± 0.00	0.00 ± 0.00	nd	nd	1.69 ± 0.19	nd	nd	nd	0.67 ± 0.43
Γ butyrolactone	0.29 ± 0.00 ^a	0.27 ± 0.03 ^{ab}	0.26 ± 0.00 ^{bc}	0.25 ± 0.01 ^{bc}	0.25 ± 0.00 ^{bc}	0.25 ± 0.00 ^{bc}	0.22 ± 0.00 ^d	0.26 ± 0.01 ^{abc}	0.24 ± 0.01 ^{cd}	0.27 ± 0.00 ^{ab}	0.27 ± 0.00 ^{ab}
Guaiacol	0.06 ± 0.01 ^b	nd	0.03 ± 0.03 ^{bc}	nd	0.03 ± 0.03 ^{bc}	0.05 ± 0.01 ^b	nd	nd	nd	0.03 ± 0.03 ^{bc}	0.13 ± 0.00 ^a

Data, expressed as mg L⁻¹, are means ± standard deviations of three independent experiments. nd = not detected. Data with different superscript letters within each row are significantly different (Tukey tests: p < 0.05)