

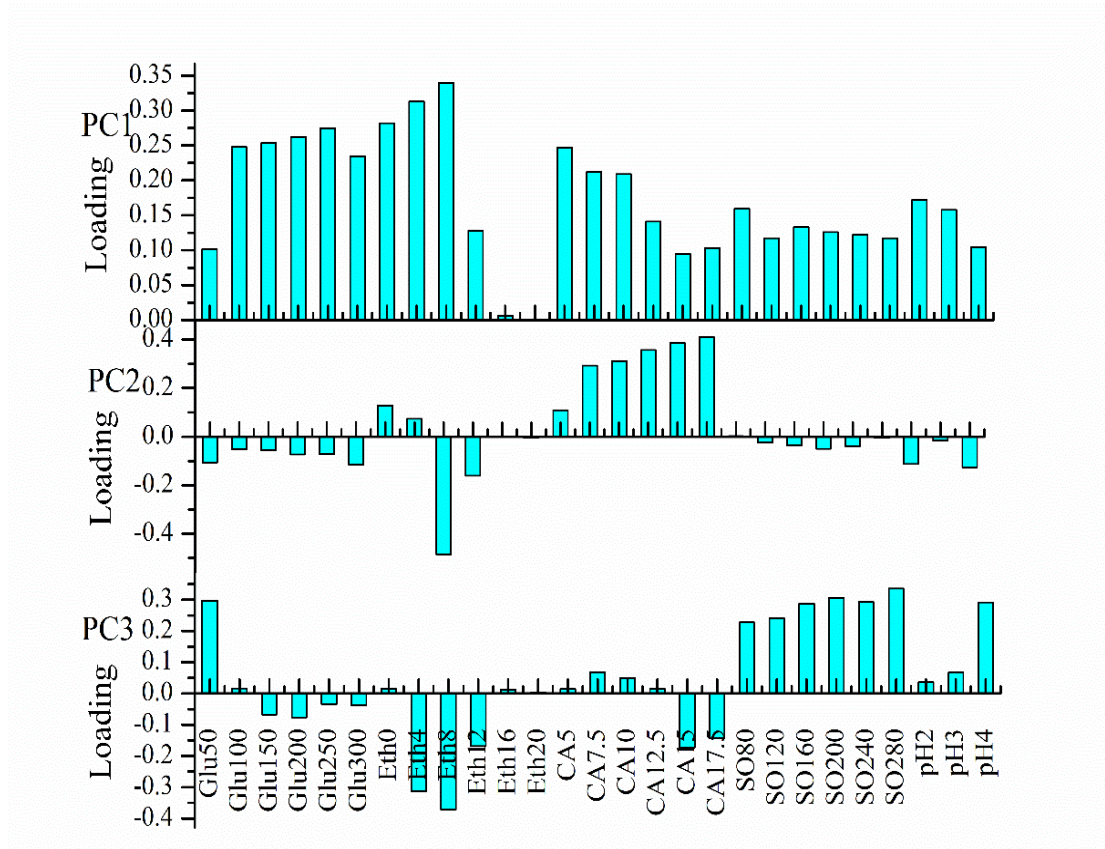


Figure S1. The loading for PC1, PC2 and PC3.

Table S1. The growth of the screened non-*Saccharomyces cerevisiae* and commercial *S. cerevisiae* RV002 at the end of incubation exposing to different glucose, citric acid, alcohol, SO₂ concentration and pH stress treatments.

Strains	Glucose (g/L)					
	50	100	150	200	250	300
LJD-7-2	1.509 ± 0.033hA	1.408 ± 0.049hB	1.288 ± 0.015fC	1.232 ± 0.042kD	1.207 ± 0.005hD	1.081 ± 0.050hE
	1.933 ± 0.196cdA	1.743 ± 0.002eB	1.705 ± 0.003cB	1.659 ± 0.002cdE	1.512 ± 0.000eC	1.550 ± 0.000cC
NP-19-2	1.752 ± 0.003fB	1.815 ± 0.002dA	1.547 ± 0.001eC	1.461 ± 0.001iD	1.396 ± 0.002gE	1.347 ± 0.001gF
	2.041 ± 0.008bA	1.891 ± 0.030bB	1.785 ± 0.002bC	1.711 ± 0.002cdD	1.737 ± 0.002bE	1.512 ± 0.000cdF
NP-1-1	1.422 ± 0.002hE	1.562 ± 0.005gA	1.509 ± 0.010eB	1.496 ± 0.001hiC	1.431 ± 0.001fD	1.374 ± 0.001gF
	2.090 ± 0.040bA	1.861 ± 0.019cB	1.774 ± 0.019bC	1.647 ± 0.011defD	1.597 ± 0.021cE	1.489 ± 0.022deF
JST-18-3	1.624 ± 0.020gA	1.591 ± 0.013fB	1.558 ± 0.012eC	1.472 ± 0.001iE	1.538 ± 0.003dD	1.463 ± 0.000eF
	2.179 ± 0.006aA	1.905 ± 0.011bB	1.818 ± 0.004bD	1.849 ± 0.004bC	1.732 ± 0.000bE	1.646 ± 0.001bF
JT-3-5	1.952 ± 0.003cA	1.892 ± 0.008bB	1.772 ± 0.065bC	1.584 ± 0.001fgD	1.444 ± 0.002fE	1.465 ± 0.003defE
	1.474 ± 0.003hA	1.436 ± 0.001hB	1.310 ± 0.002fD	1.323 ± 0.002jC	1.048 ± 0.001iF	1.051 ± 0.001hiE
JP-17-2	1.842 ± 0.021eA	1.900 ± 0.034bA	1.689 ± 0.039cB	1.713 ± 0.125cB	1.577 ± 0.016cC	1.428 ± 0.039fD

JST-7-1	2.075 ± 0.050bA	1.182 ± 0.000jB	1.043 ± 0.051gC	0.964 ± 0.010mD	0.917 ± 0.000jE	1.011 ± 0.001iC
NP-10- 12	1.421 ± 0.163hA	1.258 ± 0.022iB	1.306 ± 0.089fB	1.122± ±0.006lC	1.044 ± 0.008iCD	0.955 ± 0.013jD
JT-20-3	1.859 ± 0.016deA	1.769 ± 0.051eA	1.628 ± 0.077dB	1.625 ± 0.142efB	1.511 ± 0.065eC	1.341 ± 0.050cdeD
JP-11-3	1.830 ± 0.005efA	1.763 ± 0.028eB	1.660 ± 0.085cdC	1.539 ± 0.008ghD	1.426 ± 0.018fE	1.380 ± 0.083gE
RV002	1.904 ± 0.019cdeE	2.172 ± 0.011aB	2.212 ± 0.024aA	2.137 ± 0.007aBC	2.106 ± 0.015aC	2.028 ± 0.065aD
Citric acid (g/L)						
	5	7.5	10	12.5	15	17.5
LJD-7-2	1.043 ± 0.001hF	1.453 ± 0.001cE	1.517 ± 0.001cC	1.589 ± 0.000abB	1.505 ± 0.000bD	1.664 ± 0.001aA
NP-19-2	0.835 ± 0.001jF	1.024 ± 0.001iD	1.304 ± 0.001gA	1.153 ± 0.002fB	1.116 ± 0.001eC	0.998 ± 0.001fE
JP-4-2	1.724 ± 0.002aA	1.408 ± 0.009deB	1.355 ± 0.006fC	1.337 ± 0.002dD	0.999 ± 0.002gE	1.403 ± 0.002cB
NP-1-1	1.198 ± 0.000deE	1.366 ± 0.001fB	1.474 ± 0.000dA	1.338 ± 0.001dC	1.245 ± 0.001dD	1.101 ± 0.002eF
JST-18-3	1.182 ± 0.046eC	1.321 ± 0.044gA	1.258 ± 0.001hAB	1.244 ± 0.077eBC	1.050 ± 0.057fD	0.748 ± 0.035hE
JT-1-3	1.149 ± 0.032fB	1.381 ± 0.001efA	1.414 ± 0.080eA	1.345 ± 0.172dA	0.996 ± 0.108gC	0.878 ± 0.026gD
NP-5-5	1.144 ± 0.025fA	1.087 ± 0.036hAB	0.992 ± 0.017jC	1.003 ± 0.134gC	1.030 ± 0.002fgBC	1.101 ± 0.008eAB
JT-3-5	1.757 ± 0.000aA	1.616 ± 0.000bD	1.628 ± 0.000aC	1.658 ± 0.001aB	1.241 ± 0.003dF	1.266 ± 0.002dE
JP-17-2	1.119 ± 0.075fgB	1.090 ± 0.045hB	0.858 ± 0.027kC	1.148 ± 0.054fB	1.282 ± 0.060dA	1.328 ± 0.043cdA
JT-12-2	0.938 ± 0.002iB	0.822 ± 0.000jD	0.762 ± 0.001iE	1.003 ± 0.000gA	0.840 ± 0.001hC	0.937 ± 0.001fgB
JP-17-1	1.663 ± 0.028bA	1.369 ± 0.034fB	1.193 ± 0.042iC	0.860 ± 0.024hD	0.564 ± 0.007iF	0.736 ± 0.254hE
JST-7-1	0.410 ± 0.005kB	0.369 ± 0.014kC	0.339 ± 0.035mC	0.451 ± 0.028iA	0.259 ± 0.010jF	0.293 ± 0.041iE
NP-10- 12	1.146 ± 0.000fF	1.393 ± 0.000defE	1.577 ± 0.000bB	1.467 ± 0.000cD	1.598 ± 0.000aA	1.573 ± 0.001bC
JT-20-3	1.105 ± 0.027gC	1.420 ± 0.038dB	1.398 ± 0.008eB	1.539 ± 0.012bcA	1.398 ± 0.004cB	1.520 ± 0.002bA
JP-11-3	1.217 ± 0.001dF	1.696 ± 0.001aA	1.455 ± 0.000dE	1.599 ± 0.001abB	1.465 ± 0.000bD	1.584 ± 0.001abC
RV002	1.420 ± 0.006cA	1.107 ± 0.001hB	0.982 ± 0.000jC	0.984 ± 0.001gC	0.843 ± 0.001hD	0.87 ± 0.001gE
Ethanol (% v/v)						
	0	4	8	12	16	20
LJD-7-2	1.657 ± 0.000eA	1.324 ± 0.004gB	0.391 ± 0.015dB	–	–	–
NP-19-2	1.843 ± 0.000bcA	1.867 ± 0.005aA	1.622 ± 0.127bB	0.343 ± 0.036bC	0.061 ± 0.000abD	0.060 ± 0.001bD
JP-4-2	1.864 ± 0.015bA	1.569 ± 0.028dB	0.126 ± 0.022eC	0.031 ± 0.031dfD	–	–
NP-1-1	1.842 ± 0.000bcA	1.501 ± 0.003eB	0.069 ± 0.002fgC	0.040 ± 0.003dD	0.067 ± 0.004abC	–
JST-18-3	1.525 ± 0.002gA	1.176 ± 0.030jB	0.049 ± 0.017fgC	0.049 ± 0.011dC	0.007± 0.007eD	–
JT-1-3	2.014 ± 0.046aA	1.297 ± 0.115ghB	0.086 ± 0.010efgC	0.042 ± 0.021dC	0.069 ± 0.017aC	0.040 ± 0.008cC
NP-5-5	1.623 ± 0.046fA	1.590 ± 0.044cdA	0.094 ± 0.010efB	0.040 ± 0.012dC	0.004 ± 0.004eC	0.009 ± 0.009eeC
JT-3-5	1.986 ± 0.003aA	1.627 ± 0.009cB	0.121 ± 0.000eC	0.121 ± 0.000cC	0.038 ± 0.000cE	0.074 ± 0.000aD
JP-17-2	1.731 ± 0.002dA	1.486 ± 0.003eB	0.076 ± 0.006efgC	0.052 ± 0.009dD	0.031 ± 0.001cE	0.064 ± 0.024abCD

JT-12-2	1.368 ± 0.027iA	1.222 ± 0.004iB	0.067 ± 0.031fgC	0.019 ± 0.017dfD	0.034 ± 0.008cD	0.063 ± 0.023abC
JP-17-1	1.669 ± 0.058eA	1.512 ± 0.012eB	1.295 ± 0.027cC	0.043 ± 0.015dD	0.015 ± 0.001dD	0.039 ± 0.020cD
JST-7-1	0.791 ± 0.001jA	0.283 ± 0.002kB	0.078 ± 0.000efgC	0.031 ± 0.000dfD	0.019 ± 0.001dF	0.025 ± 0.001dE
NP-10-12	1.417 ± 0.001hA	1.276 ± 0.003hB	0.035 ± 0.005gfC	0.012 ± 0.001E	0.017 ± 0.002dD	-
JT-20-3	1.829 ± 0.003cA	1.573 ± 0.002dB	0.069 ± 0.014fgC	0.040 ± 0.001dD	0.037 ± 0.009cD	-
JP-11-3	1.864 ± 0.000bA	1.394 ± 0.001fB	0.082 ± 0.002efgC	0.037 ± 0.000dF	0.060 ± 0.002bD	0.043 ± 0.001cE
RV002	1.872 ± 0.010bA	1.808 ± 0.025bB	1.685 ± 0.020aC	0.919 ± 0.002aC	0.014 ± 0.001dD	-
SO ₂ (mg/L)						
	80	120	160	200	240	280
LJD-7-2	2.310 ± 0.002bBC	2.378 ± 0.026bA	2.266 ± 0.044cdBCD	2.233 ± 0.043cdD	2.251 ± 0.023eCD	2.316 ± 0.090deB
NP-19-2	2.183 ± 0.003eD	2.250 ± 0.024deC	2.251 ± 0.027deC	2.314 ± 0.052bB	2.353 ± 0.025bA	2.264 ± 0.002fC
JP-4-2	2.312 ± 0.000bD	2.263 ± 0.001cdF	2.307 ± 0.000bE	2.339 ± 0.001bB	2.320 ± 0.000cC	2.463 ± 0.001bA
NP-1-1	2.148 ± 0.003eC	2.173 ± 0.008gB	2.199 ± 0.029fA	2.204 ± 0.003deA	2.214 ± 0.026fA	2.147 ± 0.003hC
JST-18-3	1.933 ± 0.001iE	1.965 ± 0.000jC	1.890 ± 0.000jF	2.125 ± 0.001fA	2.093 ± 0.001gB	1.937 ± 0.001jD
JT-1-3	2.433 ± 0.103aB	2.438 ± 0.045aB	2.526 ± 0.027aA	2.527 ± 0.005aA	2.499 ± 0.035aAB	2.547 ± 0.012aA
NP-5-5	1.979 ± 0.036hB	2.018 ± 0.033iA	1.832 ± 0.035kD	1.916 ± 0.018hC	1.942 ± 0.034iBC	1.861 ± 0.017kD
JT-3-5	2.268 ± 0.029cdAB	2.259 ± 0.012cdAB	2.248 ± 0.048deB	2.242 ± 0.065cB	2.245 ± 0.015eB	2.300 ± 0.001eA
JP-17-2	2.025 ± 0.002gE	1.902 ± 0.001kF	2.075 ± 0.001hC	2.055 ± 0.000gD	2.105 ± 0.002gA	2.086 ± 0.002iB
JT-12-2	1.683 ± 0.003kD	1.706 ± 0.000lB	1.704 ± 0.001lC	1.652 ± 0.001jF	1.658 ± 0.002kE	1.771 ± 0.001lA
JP-17-1	2.294 ± 0.024bcB	2.274 ± 0.008cC	2.287 ± 0.009bcBC	2.320 ± 0.002bA	2.278 ± 0.003dC	2.342 ± 0.048dC
JST-7-1	1.958 ± 0.000hiF	2.143 ± 0.001hD	2.136 ± 0.000gE	2.198 ± 0.002eC	2.205 ± 0.001fB	2.213 ± 0.002gA
NP-10-12	1.881 ± 0.001jE	1.973 ± 0.000jA	1.916 ± 0.000jC	1.870 ± 0.000iF	1.912 ± 0.002jD	1.933 ± 0.001jB
JT-20-3	2.075 ± 0.000fC	2.023 ± 0.001iF	2.043 ± 0.001iD	2.077 ± 0.001gB	2.040 ± 0.000hE	2.148 ± 0.000hA
JP-11-3	2.276 ± 0.002bcdC	2.221 ± 0.001fE	2.203 ± 0.001fF	2.233 ± 0.001cdD	2.320 ± 0.001cB	2.384 ± 0.001cA
RV002	2.254 ± 0.001dA	2.236 ± 0.001efB	2.235 ± 0.000eB	2.207 ± 0.000deC	2.206 ± 0.001fC	2.155 ± 0.001hD
pH						
	2	3	4			
LJD-7-2	1.908 ± 0.058fB	2.135 ± 0.148cdA	1.650 ± 0.020kC			
NP-19-2	2.291 ± 0.001abA	2.099 ± 0.000dB	2.061 ± 0.001cC			
JP-4-2	2.347 ± 0.030abA	2.354 ± 0.061abA	1.986 ± 0.015fB			
NP-1-1	2.255 ± 0.000abcdB	2.309 ± 0.002bA	1.997 ± 0.000eC			
JST-18-3	1.988 ± 0.036fA	2.023 ± 0.024efA	1.771 ± 0.018iB			
JT-1-3	2.150 ± 0.374cdeA	1.928 ± 0.003ghAB	1.694 ± 0.008jB			
NP-5-5	2.026 ± 0.052efB	2.126 ± 0.019dA	2.118 ± 0.005bA			

JT-3-5	2.307 ± 0.001aA	2.190 ± 0.000cB	1.925 ± 0.000gC
JP-17-2	2.131 ± 0.000deA	1.866 ± 0.000iB	1.495 ± 0.000lC
JT-12-2	1.706 ± 0.005hA	1.614 ± 0.046jB	1.420 ± 0.012mC
JP-17-1	2.273 ± 0.000abcB	2.388 ± 0.000aA	2.013 ± 0.000dC
JST-7-1	2.392 ± 0.000aA	1.887 ± 0.009hiB	1.700 ± 0.002jC
NP-10-12	1.584 ± 0.000iB	2.041 ± 0.002eA	1.431 ± 0.001mC
JT-20-3	2.135 ± 0.000deA	1.971 ± 0.000fgB	1.849 ± 0.001hC
JP-11-3	2.277 ± 0.000abcA	2.185 ± 0.001cB	1.916 ± 0.000gC
RV002	2.205 ± 0.001bcdB	2.347 ± 0.002abA	2.178 ± 0.000aC

Values are mean ± SD. “–” indicates that any value was not detected. Different lower letters (a, b, c, d, e, f, g, h, i, j, k, l, m) illustrate the significant differences ($p < 0.05$) in the values of OD₆₀₀ among the different selected yeast under the same stress treatment in the line. Different capital letters (A, B, C, D, E, F) illustrate the significant differences ($p < 0.05$) in the values of OD₆₀₀ for the selected yeast under different stress treatment in the row.

Table S2. Flavor threshold and flavor description of organic acids (malic, citric and tartaric acids).

Organic Acid	Flavor Threshold (mg/L) in Water	Flavor Threshold (mg/L) in Wine	Flavor Characteristics
Malic acid	3.70 [53]	87 [54]	Fresh, slightly bitter
Citric acid	7.69 [55]	86 [54]	Mild and refreshing, short after suffering time
Tartaric acid	60.6 [56,57]	300 [54]	Slightly astringent, strong sour taste