

Supplementary Materials:

The Importance of a Comparative Characterization of *Saccharomyces Cerevisiae* and *Saccharomyces Pastorianus* Strains for Brewing

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Table S1. Mean percentage of amino acid uptake of the yeast strains Frisinga-TUM 34/70[®], Securitas-TUM 193[®], LeoBavaricus-TUM 68[®], LunaBavaria-TUM 127[®] and Colonia-TUM 177[®] after lagering measured in the finished beers (Group A = light gray, Group B = dark gray, Group C = no shading); confidence level 95%.

Frisinga-TUM 34/70 [®]	Securitas-TUM 193 [®]	LeoBavaricus-TUM 68 [®]	LunaBavaria-TUM 127 [®]	Colonia-TUM 177 [®]
Leucine 94.22 ± 1.06	Asparagine 95.73 ± 0.43	Leucine 93.77 ± 1.23	Methionine 95.32 ± 0.24	Serine 93.64 ± 7.31
Asparagine 93.33 ± 0.43	Leucine 94.37 ± 1.71	Lysine 92.77 ± 1.83	Lysine 94.67 ± 0.80	Asparagine 92.26 ± 3.53
Phenylalanine 90.18 ± 1.23	Lysine 92.86 ± 0.00	Arginine 90.65 ± 1.26	Arginine 94.26 ± 0.32	Threonine 88.24 ± 5.38
Isoleucine 89.61 ± 1.20	Threonine 91.67 ± 0.00	Phenylalanine 90.44 ± 0.67	Serine 94.16 ± 0.55	Lysine 84.40 ± 5.32
Threonine 89.44 ± 0.89	Isoleucine 88.74 ± 3.02	Asparagine 89.47 ± 1.33	Asparagine 93.56 ± 0.91	Methionine 82.00 ± 7.54
Lysine 89.05 ± 0.76	Arginine 85.57 ± 2.52	Isoleucine 88.93 ± 1.71	Threonine 88.27 ± 0.59	Histidine 69.35 ± 1.68
Arginine 84.19 ± 0.55	Phenylalanine 85.34 ± 3.46	Aspartic acid 88.13 ± 1.12	Leucine 86.88 ± 2.88	Arginine 58.84 ± 5.52
Tryptophan 84.09 ± 0.00	Tryptophan 84.09 ± 0.00	Alanine 87.34 ± 1.39	Isoleucine 84.67 ± 2.52	Aspartic acid 58.82 ± 5.50
Aspartic acid 83.92 ± 0.63	Aspartic acid 84.31 ± 4.39	Threonine 85.31 ± 1.48	Aspartic acid 81.15 ± 0.78	Isoleucine 49.79 ± 9.14
Methionine 82.76 ± 0.00	Methionine 82.76 ± 0.00	Valine 84.28 ± 1.49	Histidine 75.26 ± 1.24	Leucine 49.50 ± 8.41
Valine 81.03 ± 2.64	Histidine 80.21 ± 4.41	Glutamic acid 80.98 ± 2.15	Phenylalanine 72.48 ± 3.15	Glutamic acid 34.48 ± 10.53
Tyrosine 77.45 ± 3.14	Valine 73.44 ± 5.28	Serine 80.75 ± 1.76	Glutamic acid 70.37 ± 2.78	Phenylalanine 28.64 ± 7.77
Glutamic acid 73.33 ± 1.54	Glutamic acid 68.33 ± 7.06	Tyrosine 77.21 ± 2.13	Alanine 65.22 ± 3.97	Valine 22.41 ± 10.13
Histidine 67.71 ± 6.01	Serine 67.86 ± 7.70	Methionine 75.98 ± 1.70	Valine 62.40 ± 3.75	Tryptophan 18.75 ± 5.11
Serine 53.17 ± 1.27	Tyrosine 66.67 ± 5.94	Histidine 73.39 ± 0.62	Tyrosine 55.19 ± 4.86	Tyrosine 9.14 ± 7.95

Gamma-amino butyric acid 32.91 ± 7.30	Alanine 31.42 ± 11.49	GABA 56.63 ± 6.46	Glycine 29.30 ± 5.68	Norvaline 0,00 ± 0,00
Alanine 28.69 ± 7.22	Gamma-amino butyric acid 25.74 ± 7.52	Tryptophan 45.70 ± 1.72	Gamma-amino butyric acid 22.01 ± 10.64	Alanine -4.05 ± 6.70
Glycine 7.41 ± 6.27	Glycine 19.26 ± 18.52	Glycine 41.00 ± 3.59	Tryptophan 13.40 ± 24.39	Gamma-amino butyric acid -17.21 ± 4.34
Norvaline 0,00 ± 0,00	Norvaline 0,00 ± 0,00	Norvaline 0,00 ± 0,00	Norvaline 0,00 ± 0,00	Glycine -28.18 ± 10.65
Glutamine -22.67 ± 11.88	Glutamine -14.67 ± 24.61	Glutamine -386.59 ± 42.07	Glutamine -263.28 ± 30.53	Glutamine -452.14 ± 123.55

Table S2. Mean percentage of amino acid uptake of the yeast strains Vetus-TUM 184®, Mel-TUM 211®, Monacus-TUM 381®, Tropicus-TUM 506® and Harmonia-TUM 511® after lagering measured in the finished beers (Group A = light gray, Group B = dark gray, Group C = no shading); confidence level 95%.

Vetus-TUM 184®	Mel-TUM 211®	Monacus-TUM 381®	Tropicus-TUM 506®	Harmonia-TUM 511®
Methionine 97.97 ± 0.87	Threonine 95.39 ± 0.81	Lysine 95.42 ± 0.06	Threonine 94.51 ± 0.44	Serine 95.29 ± 1.00
Serine 97.77 ± 0.99	Serine 93.18 ± 0.94	Leucine 90.72 ± 0.66	Serine 92.02 ± 0.61	Threonine 93.58 ± 0.58
Tryptophan 96.21 ± 0.15	Asparagine 92.62 ± 0.36	Asparagine 89.88 ± 2.00	Asparagine 91.11 ± 0.23	Lysine 89.29 ± 1.60
Histidine 96.27 ± 0.67	Histidine 91.57 ± 1.35	Arginine 87.61 ± 1.01	Lysine 90.83 ± 1.23	Asparagine 83.51 ± 0.88
Threonine 94.08 ± 1.75	Methionine 90.04 ± 0.87	Threonine 83.29 ± 2.77	Histidine 89.89 ± 1.04	Arginine 82.86 ± 2.23
Asparagine 93.42 ± 1.00	Lysine 89.40 ± 0.92	Isoleucine 83.16 ± 1.70	Methionine 84.02 ± 1.60	Methionine 80.58 ± 2.69
Leucine 90.33 ± 1.53	Arginine 83.29 ± 2.09	Phenylalanine 82.34 ± 1.11	Leucine 82.97 ± 0.05	Leucine 76.50 ± 1.64
Lysine 90.09 ± 3.25	Tryptophan 81.64 ± 0.98	Serine 78.61 ± 3.83	Arginine 75.25 ± 1.91	Histidine 75.92 ± 3.61
Arginine 88.23 ± 4.11	Isoleucine 80.18 ± 0.69	Methionine 77.17 ± 4.91	Isoleucine 73.28 ± 0.79	Isoleucine 69.56 ± 3.01
Isoleucine 87.01 ± 2.58	Leucine 79.08 ± 0.74	Valine 76.83 ± 1.61	Aspartic-acid 71.93 ± 0.10	Phenylalanine 61.81 ± 2.66
Aspartic acid 85.68 ± 3.27	Aspartic-acid 78.85 ± 1.04	Aspartic acid 75.79 ± 1.59	Tryptophan 69.26 ± 2.71	Glutamic-acid 61.36 ± 1.15
Valine 69.95 ± 2.71	Glutamic-acid 75.01 ± 0.79	Glutamic acid 69.99 ± 1.44	Glutamic-acid 67.28 ± 1.79	Tryptophan 57.97 ± 6.79
Glutamic acid 68.82 ± 5.15	Phenylalanine 64.98 ± 1.47	Histidine 68.54 ± 6.79	Phenylalanine 64.06 ± 0.20	Valine 51.93 ± 1.35
Glycine 62.93 ± 4.17	Valine 60.76 ± 1.77	Tyrosine 63.25 ± 1.66	Valine 51.89 ± 0.36	Aspartic-acid 48.31 ± 2.11

Tyrosine 58.67 ± 3.20	Tyrosine 52.92 ± 2.52	Alanine 53.15 ± 4.26	Tyrosine 48.70 ± 0.56	Tyrosine 43.56 ± 3.09
Phenylalanine 58.32 ± 4.53	Alanine 48.56 ± 2.24	Gamma-amino butyric acid 11.01 ± 10.07	Alanine 39.18 ± 0.30	Glycine 18.81 ± 2.68
Alanine 53.52 ± 1.76	Glycine 43.92 ± 2.58	Glycine 10.14 ± 4.98	Glycine 28.81 ± 1.02	Alanine 17.02 ± 2.64
Gamma-amino butyric acid 20.69 ± 4.59	Gamma-amino butyric acid 35.58 ± 1.91	Norvaline 0.00 ± 0.00	Gamma amino butyric acid 27.75 ± 0.48	Gamma amino butyric acid 13.67 ± 5.77
Norvaline 0,00 ± 0,00	Norvaline 0.00 ± 0.00	Tryptophan -21.72 ± 11.70	Norvaline 0.00 ± 0.00	Norvaline 0.00 ± 0.00
Glutamine -56.82 ± 20.51	Glutamine -39.20 ± 3.27	Glutamine -1574.43 ± 692.59	Glutamine -14.44 ± 0.54	Glutamine -9.96 ± 0.72