

SUPPLEMENTAL MATERIAL

Fermentation of dairy-relevant sugars by *Saccharomyces*, *Kluyveromyces*, and *Brettanomyces*: an exploratory study with implications for the utilization of acid whey - Part II

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Table S1. Prediction models for density curves of aerobic fermentations by different yeasts, in yeast nitrogen base with amino acids supplemented with lactose, glucose, and galactose. Root mean square error (RMSE) and R-square are shown as estimations of the accuracy of each model fitted. *B. bruxellensis* in lactose and galactose, as well as *S. cerevisiae* in lactose, were excluded from the analysis, as no density decrease was observed in these treatments.

Species	Fitted Model	RMSE	R-Square	Equation	Parameters
<i>Brettanomyces bruxellensis</i>	Logistic 4P	0.00079	0.96507	$Density = a + \frac{(b-a)}{1+e^{-c(Time-d)}}$	a = Lower Asymptote b = Upper Asymptote c = Growth Rate d = Inflection Point
<i>Brettanomyces claussenii</i>	Logistic 4P	0.00069	0.98434		
<i>Kluyveromyces marxianus</i>	Exponential 3P	0.00165	0.92472	$Density = a + b \times e^{c(Time)}$	a = Asymptote b = Scale c = Growth Rate
<i>Saccharomyces cerevisiae</i>	Exponential 3P	0.00171	0.88752		

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Table S2. Estimated parameters of fitted models for density curves of aerobic fermentations by different yeasts. Values in parentheses correspond to the standard errors of said parameters. Unless stated otherwise, each estimate resulted in a significant value ($P < 0.02$), according to the Wald test. *B. bruxellensis* in lactose and galactose, as well as *S. cerevisiae* in lactose, were excluded from the analysis, as no density decrease was observed in these treatments.

Species	Carbon Source	a (g/mL)	b (g/mL)	c (g mL ⁻¹ day ⁻¹)	d (day)
<i>B. bruxellensis</i>	Glucose + Galactose	1.011 (0)	1.016 (0)	-3.575 (13.978) *	4.398 (1.535)
	Glucose	1.006 (0)	1.017 (0)	-0.716 (0.099)	6.640 (0.240)
<i>B. clausenii</i>	Lactose	1.012 (0)	1.016 (0)	-1.662 (0.671)	2.920 (0.272)
	Glucose + Galactose	1.009 (0)	1.016 (0)	-3.246 (0.747)	2.311 (0.097)
	Glucose	1.000 (0)	1.016 (0)	-2.780 (0.377)	3.084 (0.042)
	Galactose	1.015 (0)	1.017 (0)	-1.868 (1.508) †	3.094 (0.474)
<i>K. marxianus</i>	Lactose	1.000 (0)	0.016 (0.001)	-0.975 (0.134)	-
	Glucose + Galactose	1.001 (0)	0.015 (0.001)	-0.827 (0.112)	-
	Glucose	1.000 (0)	0.016 (0.001)	-0.949 (0.124)	-
	Galactose A	1.009 (0.001)	0.007 (0.002)	-1.032 (0.530) °	-
	Galactose B	1.000 (0.001)	0.017 (0.001)	-0.899 (0.163)	-
<i>S. cerevisiae</i>	Glucose + Galactose	1.003 (0)	0.015 (0.001)	-0.575 (0.080)	-
	Glucose	1.001 (0)	0.017 (0.001)	-0.685 (0.084)	-
	Galactose	1.003 (0)	0.016 (0.001)	-0.363 (0.046)	-

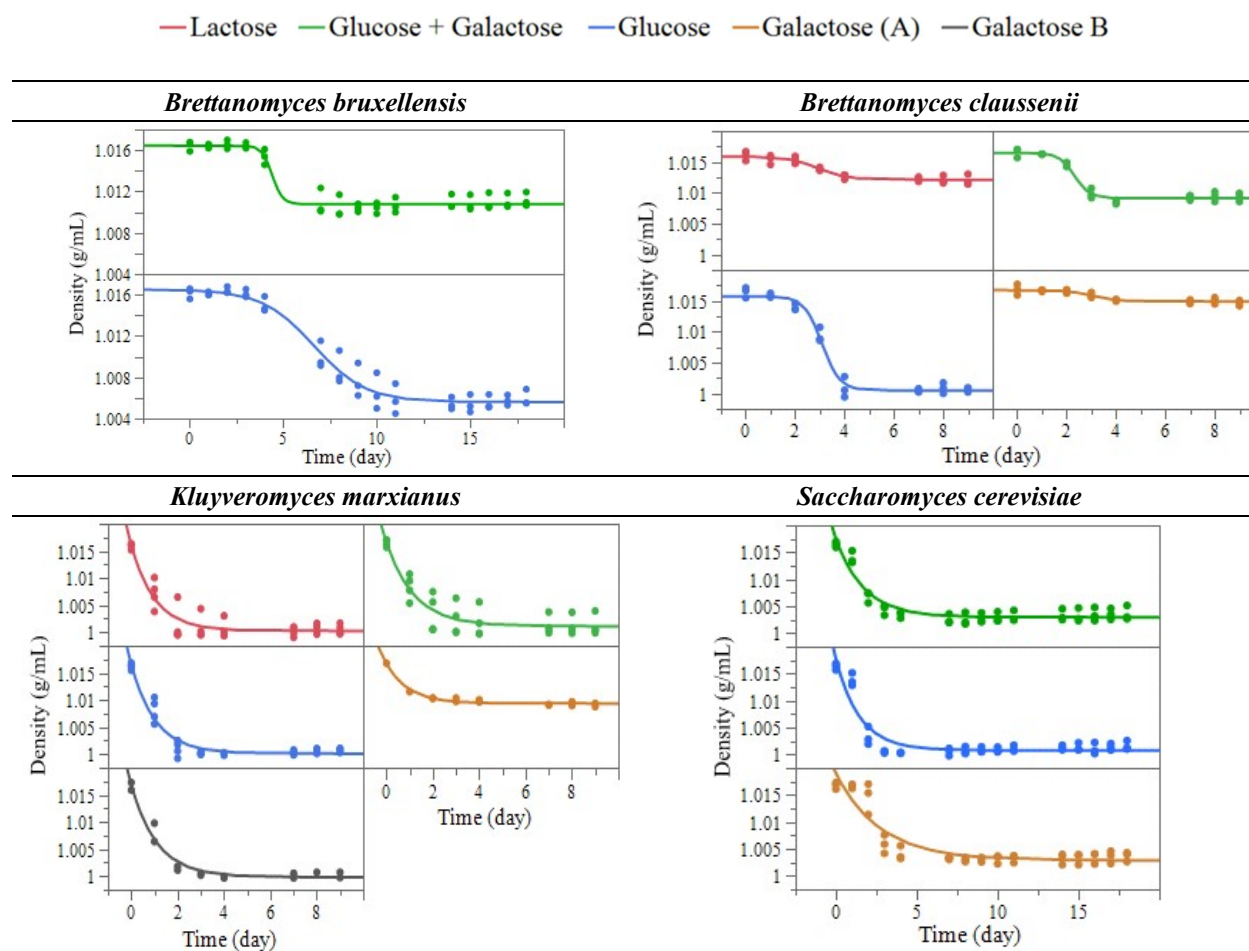
*P = 0.7981, †P = 0.2155, and °P = 0.0516

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Figure S1. Model plots for density curves of aerobic fermentations by different yeasts, in non-selective medium supplemented with sugars commonly found in acid whey. *B. bruxellensis* in lactose and galactose, as well as *S. cerevisiae* in lactose, were excluded from the analysis, as no density decrease was observed in these treatments. The moniker ‘Galactose (A)’ represents the galactose curve for both Galactose and Galactose A.



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Figure S2. Analysis of Mean (ANOM) of growth rate parameters obtained per carbon source for each yeast species. Results shown in red fall outside of the upper or lower decision limits (UDL or LDL), as compared to the mean value for all carbon sources when fermented by the displayed species ($\alpha=0.05$). *B. bruxellensis* in lactose and galactose, as well as *S. cerevisiae* in lactose, were excluded from the analysis, as no density decrease was observed in these treatments.

