

Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1, Table S1: ANOVA analysis of the first order model for response variables in PBD for L-lactic acid production by *L. rhamnosus* SCJ9 using TSF. Table S2: ANOVA for response surface quadratic model of the CCD for L-lactic acid production by *L. rhamnosus* SCJ9 using TSF. Table S3: ANOVA for response surface quadratic model of L-lactic acid production by *L. rhamnosus* SCJ9 using SSF.

Table S1. ANOVA analysis of the first order model for response variables in PBD for L-lactic acid production by *L. rhamnosus* SCJ9 using TSF.

Source	Coefficient estimate	Sum of squares	df	Mean square	F-value	p-value (Prob > F)	
Model/Intercept	44.27	3192.65	9	354.74	157.97	< 0.0001	Significant
A-LGC hydrolysate	9.77	1144.65	1	1144.65	509.74	< 0.0001	
B-YE	9.90	1176.12	1	1176.12	523.75	< 0.0001	
C-tween80	1.08	10.45	1	10.45	4.66	0.0971	
D-(NH ₄) ₂ HPO ₄	1.48	19.65	1	19.65	8.75	0.0416	
E-CH ₃ COONa	0.81	5.92	1	5.92	2.64	0.1797	
F-(NH ₄) ₂ HC ₆ H ₅ O ₇	0.44	1.73	1	1.73	0.77	0.4292	
G-MgSO ₄	1.93	33.45	1	33.45	14.89	0.0182	
H-MnSO ₄	−0.11	0.10	1	0.10	0.045	0.8430	
AB	9.78	382.85	1	382.85	170.49	0.0002	
Center Point	11.47						
Curvature		315.56	1	315.56	140.53	0.0003	Significant
Residual		8.98	4	2.25			
Lack of Fit		8.50	2	4.25	17.46	0.0542	Not significant
Pure Error		0.49	2	0.24			
Core Total		3517.20	14				

Adj-R²= 0.9909, R²= 0.9972.

Table S2. ANOVA for response surface quadratic model of the CCD for L-lactic acid production by *L. rhamnosus* SCJ9 using TSF.

Source	Coefficient estimate	Sum of squares	df	MS	F-value	p-value (Prob > F)
Model	120.43	9796.66	5	1959.33	138.55	< 0.0001
A-LGC hydrolysate	29.11	6777.36	1	6777.36	479.24	< 0.0001
B-YE	10.16	826.59	1	826.59	58.45	0.0001
AB	5.30	113.37	1	112.37	7.95	0.0258
A ²	−14.92	1549.17	1	1549.17	109.55	< 0.0001

B ²	−10.61	783.11	1	783.11	55.38	0.0001
Residual		98.99	7	14.14		
Lack of Fit		78.39	3	26.13	5.07	0.0753
Pure Error		20.60	4	5.15		

Adj-R² = 0.9900, R² = 0.9829.

Table S3. ANOVA for response surface quadratic model of L-lactic acid production by *L. rhammosus* SCJ9 using SSF.

Source	Coefficient estimate	Sum of squares	df	MS	F-value	<i>p</i> -value (Prob > F)
Model	130.19	2008.34	5	401.67	19.42	0.0006
X-AA	2.86	65.34	1	65.34	3.16	0.1187
Y-GA	8.98	644.77	1	644.77	31.17	0.0008
XY	−1.67	11.15	1	11.15	0.54	0.4866
X ²	−11.29	886.87	1	886.87	42.88	0.0003
Y ²	−8.99	562.58	1	562.58	27.20	0.0012
Residual		144.79	7	20.68		
Lack of Fit		107.59	3	35.86	3.86	0.1126
Pure Error		37.20	4	9.30		
Core Total		2153.13	12			

Adj-R² = 0.9328, R² = 0.8847.