

Apéndice B Análisis estadísticos de sistemas modelo a diferentes pH y tiempo de almacenamiento.

Actividad enzimática versus tiempo de almacenamiento(hr), pH

Factor	Type	Levels	Values
T almace(hr)	fixed	4	0, 8, 24, 48
pH	fixed	5	3.15, 3.60, 4.00, 4.80, 6.00

Analysis of Variance for Actividad enzimática, using Adjusted SS for Tests

Source	DF	Seq SS	Adj SS	Adj MS	F	P
T almace(hr)	3	128787	117590	39197	61.35	0.000
pH	4	1036857	1030279	257570	403.12	0.000
T almace(hr)*pH	12	48731	48731	4061	6.36	0.000
Error	41	26197	26197	639		
Total	60	1240572				

S = 25.2774 R-Sq = 97.89% R-Sq(adj) = 96.91%

Tukey Simultaneous Tests

Response Variable Actividad enzimática

All Pairwise Comparisons among Levels of T almacenamiento(hr)*pH

Tiempo de almacenamiento(hr) = 0

pH = 3.15 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
0	3.60	29.6	20.64	1.434	0.9948
0	4.00	139.6	20.64	6.764	0.0001
0	4.80	208.8	20.64	10.117	0.0001
0	6.00	251.6	20.64	12.191	0.0001
8	3.15	-109.2	20.64	-5.291	0.0007
8	3.60	-55.6	20.64	-2.694	0.4590
8	4.00	34.0	20.64	1.647	0.9775
8	4.80	146.8	20.64	7.113	0.0001
8	6.00	189.2	20.64	9.167	0.0001
24	3.15	-182.4	20.64	-8.838	0.0001
24	3.60	-79.6	20.64	-3.857	0.0414
24	4.00	9.2	20.64	0.446	1.0000
24	4.80	168.0	20.64	8.140	0.0001
24	6.00	219.2	20.64	10.621	0.0001
48	3.15	-196.4	20.64	-9.516	0.0001
48	3.60	-119.0	19.31	-6.163	0.0001
48	4.00	2.4	20.64	0.116	1.0000
48	4.80	124.0	20.64	6.008	0.0001
48	6.00	252.4	20.64	12.229	0.0001

Tiempo de almacenamiento(hr) = 0

pH = 3.60 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
0	4.00	110.0	20.64	5.33	0.0006
0	4.80	179.2	20.64	8.68	0.0001
0	6.00	222.0	20.64	10.76	0.0001

8	3.15	-138.8	20.64	-6.73	0.0001
8	3.60	-85.2	20.64	-4.13	0.0202
8	4.00	4.4	20.64	0.21	1.0000
8	4.80	117.2	20.64	5.68	0.0003
8	6.00	159.6	20.64	7.73	0.0001
24	3.15	-212.0	20.64	-10.27	0.0001
24	3.60	-109.2	20.64	-5.29	0.0007
24	4.00	-20.4	20.64	-0.99	1.0000
24	4.80	138.4	20.64	6.71	0.0001
24	6.00	189.6	20.64	9.19	0.0001
48	3.15	-226.0	20.64	-10.95	0.0001
48	3.60	-148.6	19.31	-7.70	0.0001
48	4.00	-27.2	20.64	-1.32	0.9981
48	4.80	94.4	20.64	4.57	0.0058
48	6.00	222.8	20.64	10.80	0.0001

Tiempo de almacenamiento(hr) = 0
 pH = 4.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
0	4.80	69.2	20.64	3.35	0.0377
0	6.00	112.0	20.64	5.43	0.0005
8	3.15	-248.8	20.64	-12.05	0.0001
8	3.60	-195.2	20.64	-9.46	0.0001
8	4.00	-105.6	20.64	-5.12	0.0012
8	4.80	7.2	20.64	0.35	1.0000
8	6.00	49.6	20.64	2.40	0.6562
24	3.15	-322.0	20.64	-15.60	0.0001
24	3.60	-219.2	20.64	-10.62	0.0001
24	4.00	-130.4	20.64	-6.32	0.0001
24	4.80	28.4	20.64	1.38	0.9968
24	6.00	79.6	20.64	3.86	0.0414
48	3.15	-336.0	20.64	-16.28	0.0001
48	3.60	-258.6	19.31	-13.39	0.0001
48	4.00	-137.2	20.64	-6.65	0.0001
48	4.80	-15.6	20.64	-0.76	1.0000
48	6.00	112.8	20.64	5.47	0.0004

Tiempo de almacenamiento(hr) = 0
 pH = 4.80 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
0	6.00	42.8	20.64	2.07	0.0012
8	3.15	-318.0	20.64	-15.41	0.0001
8	3.60	-264.4	20.64	-12.81	0.0001
8	4.00	-174.8	20.64	-8.47	0.0001
8	4.80	-62.0	20.64	-3.00	0.2770
8	6.00	-19.6	20.64	-0.95	1.0000
24	3.15	-391.2	20.64	-18.95	0.0001
24	3.60	-288.4	20.64	-13.97	0.0001
24	4.00	-199.6	20.64	-9.67	0.0001
24	4.80	-40.8	20.64	-1.98	0.8935
24	6.00	10.4	20.64	0.50	1.0000
48	3.15	-405.2	20.64	-19.63	0.0001
48	3.60	-327.8	19.31	-16.98	0.0001
48	4.00	-206.4	20.64	-10.00	0.0001
48	4.80	-84.8	20.64	-4.11	0.0213
48	6.00	43.6	20.64	2.11	0.8320

Tiempo de almacenamiento(hr) = 0
pH = 6.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
8	3.15	-360.8	20.64	-17.48	0.0001
8	3.60	-307.2	20.64	-14.88	0.0001
8	4.00	-217.6	20.64	-10.54	0.0001
8	4.80	-104.8	20.64	-5.08	0.0013
8	6.00	-62.4	20.64	-3.02	0.2673
24	3.15	-434.0	20.64	-21.03	0.0001
24	3.60	-331.2	20.64	-16.05	0.0001
24	4.00	-242.4	20.64	-11.74	0.0001
24	4.80	-83.6	20.64	-4.05	0.0249
24	6.00	-32.4	20.64	-1.57	0.9861
48	3.15	-448.0	20.64	-21.71	0.0001
48	3.60	-370.6	19.31	-19.20	0.0001
48	4.00	-249.2	20.64	-12.07	0.0001
48	4.80	-127.6	20.64	-6.18	0.0001
48	6.00	0.8	20.64	0.04	1.0000

Tiempo de almacenamiento(hr) = 8
pH = 3.15 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
8	3.60	53.60	20.64	2.597	0.5239
8	4.00	143.20	20.64	6.938	0.0001
8	4.80	256.00	20.64	12.404	0.0001
8	6.00	298.40	20.64	14.458	0.0001
24	3.15	-73.20	20.64	-3.547	0.0888
24	3.60	29.60	20.64	1.434	0.9948
24	4.00	118.40	20.64	5.737	0.0002
24	4.80	277.20	20.64	13.431	0.0001
24	6.00	328.40	20.64	15.912	0.0001
48	3.15	-87.20	20.64	-4.225	0.0155
48	3.60	-9.78	19.31	-0.507	1.0000
48	4.00	111.60	20.64	5.407	0.0005
48	4.80	233.20	20.64	11.299	0.0001
48	6.00	361.60	20.64	17.520	0.0001

Tiempo de almacenamiento(hr) = 8
pH = 3.60 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
8	4.00	89.6	20.64	4.341	0.0112
8	4.80	202.4	20.64	9.807	0.0001
8	6.00	244.8	20.64	11.861	0.0001
24	3.15	-126.8	20.64	-6.144	0.0001
24	3.60	-24.0	20.64	-1.163	0.9996
24	4.00	64.8	20.64	3.140	0.2142
24	4.80	223.6	20.64	10.834	0.0001
24	6.00	274.8	20.64	13.315	0.0001
48	3.15	-140.8	20.64	-6.822	0.0001
48	3.60	-63.4	19.31	-3.283	0.1599
48	4.00	58.0	20.64	2.810	0.3852

48	4.80	179.6	20.64	8.702	0.0001
48	6.00	308.0	20.64	14.923	0.0001

Tiempo de almacenamiento(hr) = 8
pH = 4.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
8	4.80	112.8	20.64	5.47	0.0004
8	6.00	155.2	20.64	7.52	0.0001
24	3.15	-216.4	20.64	-10.49	0.0001
24	3.60	-113.6	20.64	-5.50	0.0004
24	4.00	-24.8	20.64	-1.20	0.9994
24	4.80	134.0	20.64	6.49	0.0001
24	6.00	185.2	20.64	8.97	0.0001
48	3.15	-230.4	20.64	-11.16	0.0001
48	3.60	-153.0	19.31	-7.92	0.0001
48	4.00	-31.6	20.64	-1.53	0.9893
48	4.80	90.0	20.64	4.36	0.0106
48	6.00	218.4	20.64	10.58	0.0001

Tiempo de almacenamiento(hr) = 8
pH = 4.80 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
8	6.00	42.4	20.64	2.05	0.8603
24	3.15	-329.2	20.64	-15.95	0.0001
24	3.60	-226.4	20.64	-10.97	0.0001
24	4.00	-137.6	20.64	-6.67	0.0001
24	4.80	21.2	20.64	1.03	0.9999
24	6.00	72.4	20.64	3.51	0.0972
48	3.15	-343.2	20.64	-16.63	0.0001
48	3.60	-265.8	19.31	-13.77	0.0001
48	4.00	-144.4	20.64	-7.00	0.0001
48	4.80	-22.8	20.64	-1.10	0.9998
48	6.00	105.6	20.64	5.12	0.0012

Tiempo de almacenamiento(hr) = 8
pH = 6.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
24	3.15	-371.6	20.64	-18.00	0.0001
24	3.60	-268.8	20.64	-13.02	0.0001
24	4.00	-180.0	20.64	-8.72	0.0001
24	4.80	-21.2	20.64	-1.03	0.9999
24	6.00	30.0	20.64	1.45	0.9939
48	3.15	-385.6	20.64	-18.68	0.0001
48	3.60	-308.2	19.31	-15.96	0.0001
48	4.00	-186.8	20.64	-9.05	0.0001
48	4.80	-65.2	20.64	-3.16	0.2062
48	6.00	63.2	20.64	3.06	0.2487

Tiempo de almacenamiento(hr) = 24
pH = 3.15 subtracted from:

Difference	SE of	Adjusted
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T almace(hr)	pH	of Means	Difference	T-Value	P-Value
24	3.60	102.80	20.64	4.9809	0.0018
24	4.00	191.60	20.64	9.2834	0.0001
24	4.80	350.40	20.64	16.9776	0.0001
24	6.00	401.60	20.64	19.4584	0.0001
48	3.15	-14.00	20.64	-0.6783	1.0000
48	3.60	63.42	19.31	3.2850	0.1592
48	4.00	184.80	20.64	8.9540	0.0001
48	4.80	306.40	20.64	14.8457	0.0001
48	6.00	434.80	20.64	21.0670	0.0001

Tiempo de almacenamiento(hr) = 24
pH = 3.60 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
24	4.00	88.8	20.64	4.303	0.0125
24	4.80	247.6	20.64	11.997	0.0001
24	6.00	298.8	20.64	14.477	0.0001
48	3.15	-116.8	20.64	-5.659	0.0003
48	3.60	-39.4	19.31	-2.040	0.8669
48	4.00	82.0	20.64	3.973	0.0306
48	4.80	203.6	20.64	9.865	0.0001
48	6.00	332.0	20.64	16.086	0.0001

Tiempo de almacenamiento(hr) = 24
pH = 4.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
24	4.80	158.8	20.64	7.694	0.0001
24	6.00	210.0	20.64	10.175	0.0001
48	3.15	-205.6	20.64	-9.962	0.0001
48	3.60	-128.2	19.31	-6.639	0.0001
48	4.00	-6.8	20.64	-0.329	1.0000
48	4.80	114.8	20.64	5.562	0.0003
48	6.00	243.2	20.64	11.784	0.0001

Tiempo de almacenamiento(hr) = 24
pH = 4.80 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
24	6.00	51.2	20.64	2.48	0.6035
48	3.15	-364.4	20.64	-17.66	0.0001
48	3.60	-287.0	19.31	-14.86	0.0001
48	4.00	-165.6	20.64	-8.02	0.0001
48	4.80	-44.0	20.64	-2.13	0.8219
48	6.00	84.4	20.64	4.09	0.0225

Tiempo de almacenamiento(hr) = 24
pH = 6.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
48	3.15	-415.6	20.64	-20.14	0.0001
48	3.60	-338.2	19.31	-17.52	0.0001
48	4.00	-216.8	20.64	-10.50	0.0001

48	4.80	-95.2	20.64	-4.61	0.0052
48	6.00	33.2	20.64	1.61	0.9822

Tiempo de almacenamiento(hr) = 48
 pH = 3.15 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
48	3.60	77.42	19.31	4.010	0.0278
48	4.00	198.80	20.64	9.632	0.0001
48	4.80	320.40	20.64	15.524	0.0001
48	6.00	448.80	20.64	21.745	0.0001

Tiempo de almacenamiento(hr) = 48
 pH = 3.60 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
48	4.00	121.4	19.31	6.287	0.0001
48	4.80	243.0	19.31	12.586	0.0001
48	6.00	371.4	19.31	19.237	0.0001

Tiempo de almacenamiento(hr) = 48
 pH = 4.00 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
48	4.80	121.6	20.64	5.892	0.0002
48	6.00	250.0	20.64	12.113	0.0001

Tiempo de almacenamiento(hr) = 48
 pH = 4.80 subtracted from:

T almace(hr)	pH	Difference of Means	SE of Difference	T-Value	Adjusted P-Value
48	6.00	128.4	20.64	6.221	0.0001