

**APÉNDICE D**

**TABLAS DE RESULTADOS DE SECADO**

**Tabla D.1 Resultados experimentales de arroz con cáscara a 100°C, 40kPa y 2.87 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	100.5	91	1.2327	4.0506	3.4241	0.6265	2.1914	0.285	1	0.00854	0.2645
2	5	101.6	93	1.2448	4.4096	3.7906	0.619	2.5458	0.243	0.850	0.0188	0.2149
3	8	100	96	1.2434	4.5701	4.0467	0.5234	2.8035	0.186	0.653	0.00924	0.17282
4	11	98.5	99	1.2432	4.9049	4.4035	0.5014	3.1544	0.158	0.555	0.00789	0.14317
5	15	99.6	100	1.2491	3.1015	2.8904	0.2111	1.6571	0.127	0.445	0.00590	0.11852
6	18	101	100	1.2333	4.7321	4.389	0.3431	3.1286	0.109	0.383	0.00318	0.1017
7	23	100.1	102	1.2604	5.5504	5.1802	0.3702	3.9486	0.093	0.327	0.00324	0.08564
8	28	99.8	104	1.2316	4.9101	4.6461	0.264	3.4052	0.077	0.271	-0.00235	0.08692
9	36	98.1	106	1.2409	5.6651	5.2761	0.389	4.0387	0.096	0.336	0.000736	0.09116
10	50	99	109	1.2374	3.8738	3.6644	0.2094	2.4345	0.086	0.300	0.001689	0.07756
11	60	98.8	109	1.2299	3.5992	3.3665	0.2327	3.3665	0.069	0.241	-0.00115	0.06912

**Tabla D.2 Resultados experimentales de arroz con cáscara a 105°C, 40kPa y 2.90 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	103.8	98	1.2326	4.3888	3.6931	0.6957	2.4605	0.282	1	0.00653	0.2664
2	5	107.2	101	1.2445	4.3606	3.7372	0.6234	2.4927	0.250	0.884	0.0231	0.2153
3	8	105.1	104	1.244	3.5977	3.2373	0.3604	1.9944	0.180	0.639	0.0112	0.1638
4	11	104.3	104	1.2429	4.8713	4.4071	0.4642	3.1579	0.146	0.519	0.00284	0.1413
5	15	105.3	104	1.2492	3.7421	3.4425	0.2996	2.2091	0.135	0.479	0.00384	0.1298
6	18	105.7	105	1.2334	3.5128	3.2641	0.2487	2.004	0.124	0.438	0.00387	0.1144
7	23	104.5	106	1.2601	4.3026	4.0114	0.2912	2.78	0.104	0.370	0.00466	0.0930
8	28	105	107	1.2314	6.9242	6.4962	0.428	5.2553	0.081	0.288	-0.00023	0.0823
9	36	102.8	107	1.2409	8.5414	7.9797	0.5617	6.7422	0.083	0.294	0.000363	0.0807
10	50	104.2	110	1.2375	5.6492	5.3286	0.3206	4.0985	0.078	0.276	0.00144	0.0709
11	60	104.3	112	1.2301	4.9172	4.6225	0.2947	4.6225	0.063	0.225	-0.00106	0.0637

**Tabla D.3 Resultados experimentales de arroz con cáscara a 110°C, 40kPa y 2.90 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110.2	99	1.2478	4.915	4.1402	0.7748	2.8924	0.267	1	0.0050	0.2551
2	5	110.7	100	1.2443	5.2301	4.4524	0.7777	3.2081	0.242	0.904	0.0065	0.2325
3	8	109	103	1.242	2.103	1.9453	0.1577	0.7082	0.222	0.831	0.0126	0.203
4	11	109.1	107	1.2371	2.1631	2.019	0.1441	0.7795	0.184	0.690	0.0182	0.148
5	15	110.1	110	1.2395	4.2888	3.9828	0.306	2.735	0.111	0.417	0.0023	0.1085
6	18	110.1	111	1.2478	2.5226	2.4008	0.1218	1.1617	0.104	0.391	0.0006	0.1031
7	23	110.1	113	1.2391	3.8569	3.6173	0.2396	2.3625	0.101	0.378	0.0011	0.0985
8	28	107.8	114	1.2548	3.2439	3.0683	0.1756	1.8349	0.09	0.357	0.0008	0.092
9	36	110.5	116	1.2334	4.4985	4.2325	0.266	2.9874	0.089	0.332	-0.0003	0.0914
10	50	109.6	118	1.2451	4.0858	3.8414	0.2444	2.6056	0.093	0.350	0.003522	0.0761
11	60	107.3	117	1.2358	4.1258	3.8975	0.2283	3.8975	0.058	0.218	-0.00098	0.0585

**Tabla D.4 Resultados experimentales de arroz con cáscara a 100°C, 40kPa y 3.30 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	100.3	90	1.2374	4.1894	3.5333	0.6561	2.2959	0.285	1	0.0061	0.2704
2	5	101.1	92	1.2492	5.3439	4.5116	0.8323	3.2624	0.255	0.892	0.0192	0.2262
3	8	98.5	97	1.244	5.4856	4.7852	0.7004	3.547	0.197	0.690	0.0023	0.1940
4	11	99.6	99	1.2382	3.9166	3.4889	0.4277	2.2446	0.190	0.666	0.0099	0.1707
5	15	100.1	100	1.2443	9.6536	8.5502	1.1034	7.3128	0.150	0.527	0.0104	0.1351
6	18	99.4	100	1.2374	4.7531	4.3777	0.3754	3.1423	0.119	0.418	0.001	0.1163
7	23	101.1	103	1.2354	6.6608	6.1086	0.5522	4.8773	0.113	0.396	0.0045	0.1019
8	28	99.8	104	1.2313	6.7625	6.3048	0.4577	5.0464	0.090	0.317	-0.0019	0.0986
9	36	100.8	106	1.2584	5.5495	5.1338	0.4157	3.9007	0.106	0.372	0.00092	0.1001
10	50	100.9	108	1.2331	5.1114	4.7802	0.3312	3.5352	0.093	0.327	0.002604	0.0806
11	60	102.4	109	1.245	5.5222	5.1723	0.3499	5.1723	0.067	0.236	-0.00113	0.0676

**Tabla D.5 Resultados experimentales de arroz con cáscara a 105°C, 40kPa y 3.32 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	105.4	101	1.2474	4.5875	3.8788	0.7087	2.6314	0.269	1	-0.0084	0.2904
2	5	106.7	101	1.2438	3.3404	2.8423	0.4981	1.5985	0.311	1.156	0.04714	0.2408
3	8	103.9	102	1.2414	3.6567	3.3048	0.3519	2.068	0.170	0.631	0.0152	0.1472
4	11	104.3	103	1.2368	7.3842	6.7044	0.6798	5.4653	0.124	0.461	0.00579	0.1127
5	15	106.1	105	1.2391	3.2785	3.0919	0.1866	1.8441	0.101	0.375	0.00549	0.0929
6	18	104.1	105	1.2478	9.2722	8.6449	0.6273	7.406	0.084	0.314	0.00142	0.0811
7	23	104.9	106	1.2389	4.4996	4.2663	0.2333	3.0069	0.077	0.288	-0.0026	0.0842
8	28	106.5	107	1.2594	3.5452	3.3524	0.1928	2.1185	0.091	0.337	-0.0004	0.0929
9	36	105.2	108	1.2339	3.8637	3.6367	0.227	2.3914	0.094	0.352	0.00056	0.0910
10	50	102.4	110	1.2453	7.7033	7.1852	0.5181	5.949	0.087	0.323	0.00332	0.0704
11	60	104.1	111	1.2362	2.702	2.564	0.138	2.564	0.053	0.199	-0.0009	0.0538

**Tabla D.6 Resultados experimentales de arroz con cáscara a 110°C, 40kPa y 3.28 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110.1	98	1.233	5.1861	4.3414	0.8447	3.1084	0.271	1	-0.0044	0.282
2	5	109.6	100	1.2441	3.3078	2.8389	0.4689	1.5948	0.294	1.081	0.00616	0.2847
3	8	109	101	1.2438	1.6399	1.5541	0.0858	0.3114	0.275	1.013	0.02466	0.2385
4	11	110	105	1.2427	2.5559	2.3367	0.2192	1.0877	0.201	0.741	0.01428	0.1729
5	15	111	110	1.249	4.2875	3.9022	0.3853	2.6686	0.144	0.531	0.01218	0.1261
6	18	109.6	110	1.2336	4.6437	4.3144	0.3293	3.0542	0.107	0.396	0.00236	0.1018
7	23	109.1	111	1.2602	5.9222	5.5114	0.4108	4.2803	0.095	0.353	-0.0008	0.0980
8	28	111.6	113	1.2311	4.7843	4.4621	0.3222	3.2211	0.100	0.368	0.00071	0.0971
9	36	109.5	114	1.241	3.8652	3.6388	0.2264	2.4014	0.094	0.346	0.00146	0.0840
10	50	112.9	116	1.2374	3.4567	3.3038	0.1529	2.0735	0.073	0.271	0.00409	0.0532
11	60	111.3	118	1.2303	3.0725	2.9749	0.0976	2.9749	0.032	0.120	-0.0005	0.0328

**Tabla D.7 Resultados experimentales de arroz con cáscara a 100°C, 40kPa y 4.01 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	99.5	93	1.2379	7.2789	5.9548	1.3241	4.7169	0.280	1	-0.0025	0.287
2	5	93.4	94	1.2491	8.2413	6.6553	1.586	5.4062	0.293	1.045	0.00640	0.283
3	8	91.5	94	1.2441	7.0053	5.7646	1.2407	4.5258	0.274	0.976	0.00852	0.2613
4	11	99.5	98	1.2388	6.9646	5.826	1.1386	4.5809	0.248	0.885	0.00816	0.2322
5	15	106.8	99	1.2451	4.0627	3.5611	0.5016	2.3232	0.215	0.769	0.02558	0.1775
6	18	105.5	100	1.2379	2.7883	2.5986	0.1897	1.3632	0.139	0.495	0.00032	0.1383
7	23	98.5	100	1.2354	6.0818	5.4954	0.5864	4.2638	0.137	0.489	0.00124	0.1344
8	28	97.8	102	1.2316	8.5884	7.7378	0.8506	6.4791	0.131	0.467	-0.0005	0.1332
9	36	110.3	104	1.2587	7.0152	6.3262	0.689	5.0931	0.135	0.481	0.00079	0.1297
10	50	97.5	106	1.2331	5.8325	5.3259	0.5066	4.081	0.124	0.442	0.00475	0.1003
11	60	107.6	108	1.2449	5.2578	4.8838	0.374	4.8838	0.076	0.272	-0.0012	0.076

**Tabla D.8 Resultados experimentales de arroz con cáscara a 105°C, 40kPa y 4.07 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	102.1	87	1.2325	5.2876	4.4317	0.8559	3.1992	0.267	1	0.00373	0.2582
2	5	110.1	92	1.2443	8.3132	6.9045	1.4087	5.6602	0.248	0.932	0.01536	0.2258
3	8	107.2	97	1.2434	7.2766	6.2594	1.0172	5.0163	0.202	0.757	0.01225	0.184
4	11	106.3	100	1.2431	9.8978	8.6665	1.2313	7.4174	0.166	0.620	0.00634	0.1533
5	15	103.6	103	1.2491	7.8611	7.044	0.8171	5.8102	0.140	0.525	0.00882	0.1273
6	18	100.3	105	1.2338	12.1923	11.0722	1.1201	9.8113	0.114	0.426	0.00175	0.1097
7	23	106.8	106	1.2609	8.4028	7.7189	0.6839	6.4876	0.105	0.394	-0.0005	0.1067
8	28	104.3	107	1.2313	5.8879	5.4349	0.453	4.1932	0.108	0.403	-0.0003	0.1092
9	36	106.1	110	1.2417	5.7464	5.2979	0.4485	4.0604	0.110	0.412	0.00142	0.100
10	50	105.3	111	1.2375	5.8325	5.4507	0.3818	4.2205	0.090	0.338	0.00449	0.0680
11	60	104.7	113	1.2302	5.6406	5.3948	0.2458	5.3948	0.045	0.170	-0.00076	0.0455

**Tabla D.9 Resultados experimentales de arroz con cáscara a 110°C, 40kPa y 4.0 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110.4	95	1.2328	5.2612	4.3414	0.9198	3.1086	0.295	1	-0.0098	0.3203
2	5	112.3	103	1.2442	6.5368	5.1796	1.3572	3.9354	0.344	1.165	0.0577	0.2582
3	8	110.1	106	1.2436	7.4645	6.5532	0.9113	5.3101	0.171	0.580	0.0095	0.1573
4	11	108	107	1.2431	3.6531	3.3522	0.3009	2.1031	0.143	0.483	0.00283	0.1373
5	15	110	108	1.2491	5.2602	4.7915	0.4687	3.5582	0.131	0.445	0.00511	0.1240
6	18	110.4	110	1.2333	3.3591	3.1403	0.2188	1.8801	0.116	0.393	0.00082	0.1143
7	23	110.6	111	1.2602	3.8509	3.5865	0.2644	2.3554	0.112	0.379	-0.0006	0.1138
8	28	109.3	113	1.2311	3.3813	3.1598	0.2215	1.9186	0.115	0.390	-0.0004	0.1170
9	36	106.5	115	1.2412	5.7841	5.3018	0.4823	4.0643	0.118	0.401	0.00175	0.1064
10	50	110.2	117	1.2375	4.7002	4.4016	0.2986	3.1718	0.094	0.318	0.00619	0.0631
11	60	112.5	118	1.2298	5.4087	5.2398	0.1689	5.2398	0.032	0.108	-0.0005	0.0322

**Tabla D.10 Resultados experimentales de arroz con cáscara a 100°C, 53kPa y 2.98 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	100	100	1.2414	5.0104	4.027	0.9834	2.7856	0.35	1	0.00682	0.3359
2	5	99.5	100	1.2459	4.3999	3.6373	0.7626	2.3914	0.318	0.903	0.01111	0.3022
3	8	100.9	100.2	1.2422	4.6632	3.9033	0.7599	2.6611	0.285	0.808	0.01903	0.2570
4	11	107.1	101	1.2417	3.3608	2.9667	0.3941	1.725	0.228	0.647	0.00956	0.2093
5	15	104.5	101	1.2419	4.1628	3.696	0.4668	2.4541	0.190	0.538	-0.0026	0.1942
6	18	100.4	103	1.2385	2.8259	2.5633	0.2626	1.3248	0.198	0.561	0.00566	0.1840
7	23	100.2	103	1.2534	3.247	2.9575	0.2895	1.7041	0.169	0.481	0.00370	0.1606
8	28	90.8	108	1.2486	5.4462	4.8944	0.5518	3.6458	0.151	0.428	-0.0008	0.1545
9	36	110.9	112	1.2549	3.0569	2.8113	0.2456	1.5564	0.157	0.446	-0.0001	0.1585
10	50	92.6	113	1.2459	3.5669	3.248	0.3189	2.0021	0.159	0.451	0.00132	0.1526
11	60	102.6	108	1.2387	2.8448	2.6401	0.2047	1.4014	0.146	0.413	-0.0024	0.1460

**Tabla D.11 Resultados experimentales de arroz con cáscara a 105°C, 53kPa y 2.84 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	105	108	1.2433	5.3827	4.364	1.0187	3.1207	0.326	1	0.010	0.2998
2	5	105.6	108	1.2417	3.1225	2.7189	0.4036	1.4772	0.273	0.836	0.004	0.2667
3	8	104.7	108	1.2367	2.1605	1.9697	0.1908	0.7332	0.260	0.797	0.0057	0.2515
4	11	104.6	107	1.2365	2.2373	2.043	0.1943	0.7997	0.242	0.744	0.01056	0.2218
5	15	104.8	107	1.2433	2.1947	2.0336	0.1611	0.8026	0.200	0.614	0.01136	0.1836
6	18	105.8	107	1.231	2.2033	2.0662	0.1371	0.8228	0.166	0.510	0.00244	0.1605
7	23	104.7	107	1.2434	3.263	2.9939	0.2691	1.743	0.154	0.472	0.00703	0.1368
8	28	105.4	107	1.2509	4.4361	4.095	0.3411	2.8607	0.119	0.365	-0.0024	0.1288
9	36	104.8	107	1.2343	3.3038	3.0519	0.2519	1.8201	0.138	0.423	0.00266	0.1197
10	50	104.5	107	1.2318	3.7211	3.4942	0.2269	2.2459	0.101	0.309	0.00223	0.0898
11	60	100.9	107	1.2483	3.7104	3.4399	0.2705	3.4399	0.078	0.240	-0.0013	0.0786

**Tabla D.12 Resultados experimentales de arroz con cáscara a 110°C, 53kPa y 2.91 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110.5	104	1.2393	4.8747	4.1626	0.7121	2.9233	0.243	1	-0.0015	0.247
2	5	112.4	104	1.242	4.0952	3.5221	0.5731	2.2801	0.251	1.031	0.01981	0.221
3	8	108.8	101	1.2296	4.6002	4.0601	0.5401	2.8145	0.191	0.787	0.01227	0.173
4	11	110	101	1.2456	4.8457	4.3614	0.4843	3.123	0.155	0.636	0.00250	0.150
5	15	111.7	101	1.2384	3.7415	3.4244	0.3171	2.1858	0.145	0.595	0.00617	0.135
6	18	108.5	101	1.2386	3.1383	2.9263	0.212	1.6751	0.126	0.519	0.00403	0.116
7	23	101.1	101	1.2512	8.5068	7.8083	0.6985	6.5663	0.106	0.436	-0.0026	0.113
8	28	116.9	101	1.242	5.8909	5.3953	0.4956	4.1356	0.119	0.491	0.00387	0.104
9	36	110	101	1.2597	4.8807	4.583	0.2977	3.3511	0.088	0.364	0.00139	0.079
10	50	107.8	101	1.2319	7.3819	6.9836	0.3983	5.7472	0.069	0.284	0.00143	0.062
11	60	110.1	101	1.2364	4.1918	3.9736	0.2182	3.9736	0.054	0.225	-0.0009	0.054

**Tabla D.13 Resultados experimentales de arroz con cáscara a 100°C, 53kPa y 3.29 m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	98.4	91	1.2477	6.7944	5.6118	1.1826	4.3641	0.270	1	-0.0022	0.276
2	5	97	93	1.2441	7.3941	6.041	1.3531	4.7969	0.282	1.040	-0.0084	0.294
3	8	98.6	94	1.2419	7.8026	6.26	1.5426	5.0181	0.307	1.134	-0.0005	0.308
4	11	102.1	96	1.2375	4.6799	3.8671	0.8128	2.6296	0.309	1.140	0.01267	0.283
5	15	103.6	99	1.2398	2.6623	2.3702	0.2921	1.1304	0.258	0.953	0.02285	0.224
6	18	98.7	100	1.2475	1.8097	1.72	0.0897	0.4725	0.189	0.700	0.00378	0.180
7	23	102.4	103	1.2392	3.4445	3.1226	0.3219	1.8834	0.170	0.630	0.00537	0.157
8	28	98	105	1.2549	4.7452	4.3057	0.4395	3.0508	0.144	0.531	0.00095	0.140
9	36	103.4	106	1.2337	5.3089	4.8197	0.4892	3.586	0.136	0.503	-0.0022	0.151
10	50	100.1	107	1.2457	5.5498	4.9334	0.6164	3.6877	0.167	0.616	0.00358	0.149
11	60	99.2	109	1.2439	5.0367	4.5965	0.4402	3.3526	0.131	0.484	-0.0021	0.131

**Tabla D.14 Resultados experimentales de arroz con cáscara a 105°C, 53kPa y 3.34m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	105.2	95	1.2439	4.8606	3.9902	0.8704	2.7463	0.316	1	-0.0033	0.325
2	5	106.4	96	1.2441	5.4426	4.3922	1.0504	3.1481	0.333	1.05277	0.01539	0.310
3	8	102.2	98	1.2424	4.5994	3.8498	0.7496	2.6074	0.287	0.90709	0.01287	0.268
4	11	105.2	101	1.2424	5.6746	4.7912	0.8834	3.5497	0.248	0.78522	0.00625	0.236
5	15	105.3	102	1.2415	4.8814	4.2146	0.6668	2.9789	0.223	0.70626	0.00765	0.212
6	18	109.1	107	1.2357	4.5007	3.9575	0.5432	2.704	0.200	0.63384	-0.0021	0.206
7	23	104.7	110	1.2535	4.4293	3.8736	0.5557	2.6263	0.211	0.66761	0.00286	0.204
8	28	102.9	111	1.2473	4.0885	3.6215	0.467	2.3676	0.197	0.62235	0.00084	0.193
9	36	109.1	112	1.2539	5.7343	5.0162	0.7181	3.7698	0.190	0.60102	0.00128	0.181
10	50	106.1	114	1.2464	5.2082	4.6242	0.584	3.3863	0.172	0.5441	0.00061	0.169
11	60	104.9	114	1.2379	4.9472	4.2419	0.7053	4.2419	0.166	0.5246	-0.0027	0.166



**Tabla D.15 Resultados experimentales de arroz con cáscara a 110°C, 53kPa y 3.38m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	112.9	103	1.2429	6.3802	5.25	1.1302	4.0071	0.282	1	0.00551	0.268
2	5	111	103	1.2454	8.5461	7.0652	1.4809	5.8198	0.254	0.902	0.02201	0.221
3	8	109.3	103	1.2555	7.853	6.8048	1.0482	5.5632	0.188	0.668	0.01298	0.168
4	11	110.6	103	1.2416	5.501	4.9486	0.5524	3.6958	0.149	0.529	0.00903	0.131
5	15	110.5	105	1.2528	8.768	8.0012	0.7668	6.765	0.113	0.401	0.00331	0.108
6	18	109.5	105	1.2362	8.8466	8.135	0.7116	6.8815	0.103	0.366	0.00032	0.102
7	23	102	105	1.2535	5.2981	4.9239	0.3742	3.6764	0.101	0.360	-0.0023	0.107
8	28	115	104	1.2475	1.9794	1.9054	0.074	0.6522	0.113	0.402	0.00303	0.101
9	36	110	105	1.2532	2.7855	2.6594	0.1261	1.4133	0.089	0.316	0.00025	0.087
10	50	110.2	103	1.2461	3.0811	2.9358	0.1453	1.6976	0.085	0.303	0.00421	0.064
11	60	110	103	1.2382	3.0813	2.9531	0.1282	2.9531	0.043	0.153	-0.0007	0.043

**Tabla D.16 Resultados experimentales de arroz con cáscara a 115°C, 53kPa y 3.50m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	116	124	1.2304	4.8932	4.0632	0.83	2.8328	0.292	1	0.01145	0.264
2	5	116	124	1.239	5.339	4.5565	0.7825	3.3175	0.235	0.805	0.00771	0.224
3	8	116	120	1.2468	5.668	4.8925	0.7755	3.6457	0.212	0.726	0.00040	0.212
4	11	111	124	1.2447	6.1225	5.2709	0.8516	4.0262	0.211	0.721	0.00467	0.202
5	15	119	125	1.2428	4.1477	3.6781	0.4696	2.4353	0.192	0.658	0.01750	0.166
6	18	117	124	1.235	3.4733	3.1979	0.2754	1.9629	0.140	0.478	0.00925	0.117
7	23	118	125	1.2499	3.201	3.0333	0.1677	1.7834	0.094	0.320	0.00322	0.085
8	28	117	125	1.246	4.88	4.6173	0.2627	3.3713	0.077	0.265	5.83E-0	0.077
9	36	116	124	1.2533	5.2957	5.0051	0.2906	3.7518	0.077	0.264	0.00224	0.061
10	50	110	117	1.2432	3.0617	2.9817	0.08	1.7385	0.046	0.157	0.00276	0.032
11	60	116	124	1.2358	3.939	3.8903	0.0487	2.6545	0.018	0.062	-0.0003	0.018

**Tabla D.17 Resultados experimentales de arroz con cáscara a 100°C, 67kPa y 2.32m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	101.2	103	1.243	5.016	4.2138	0.8022	2.9708	0.270	1	-0.0142	0.305
2	5	100	101	1.2455	5.6503	4.5293	1.121	3.2838	0.341	1.264	-0.0026	0.345
3	8	96.3	102	1.2411	3.6758	3.0456	0.6302	1.8045	0.349	1.293	0.00663	0.339
4	11	100.2	103	1.2418	3.9825	3.3035	0.679	2.0617	0.329	1.219	0.00541	0.318
5	15	100.2	104	1.2404	4.6024	3.8114	0.791	2.571	0.307	1.139	6.97E-5	0.307
6	18	98.8	102	1.2364	2.0784	1.8804	0.198	0.644	0.307	1.138	0.01021	0.281
7	23	100.7	105	1.2341	6.6116	5.5142	1.0974	4.2801	0.256	0.949	0.00606	0.241
8	28	100.9	103	1.2475	3.2521	2.8825	0.3696	1.635	0.226	0.837	0.00057	0.223
9	36	98.9	101	1.2536	3.9143	3.4319	0.4824	2.1783	0.221	0.820	0.00194	0.207
10	50	98.3	106	1.2462	5.3903	4.7161	0.6742	3.4699	0.19	0.719	0.00089	0.189
11	60	100.3	108	1.238	3.8142	3.4114	0.4028	2.1734	0.185	0.686	-0.0030	0.185

**Tabla D.18 Resultados experimentales de arroz con cáscara a 105°C, 67kPa y 2.33m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	105	104	1.2328	5.2914	4.3312	0.9602	3.0984	0.309	1	0.00449	0.298
2	5	105.6	105	1.2442	5.0026	4.1635	0.8391	2.9193	0.287	0.927	-0.0017	0.290
3	8	106.7	105	1.244	11.1446	8.9023	2.2423	7.6583	0.292	0.944	0.00501	0.285
4	11	104.3	105	1.2433	4.3275	3.6571	0.6704	2.4138	0.277	0.896	0.01072	0.256
5	15	98.8	105	1.2488	5.2174	4.4627	0.7547	3.2139	0.234	0.757	0.00421	0.228
6	18	106.4	106	1.2336	4.7271	4.092	0.6351	2.8584	0.222	0.716	0.00688	0.204
7	23	110.5	106	1.2603	4.9261	4.3466	0.5795	3.0863	0.187	0.605	0.00208	0.182
8	28	104.5	109	1.231	2.6523	2.4382	0.2141	1.2072	0.177	0.572	0.00074	0.174
9	36	105.2	111	1.2412	7.1506	6.2861	0.8645	5.0449	0.171	0.552	0.00036	0.168
10	50	107.3	113	1.2375	5.2892	4.7115	0.5777	3.474	0.166	0.536	0.00182	0.157
11	60	105.3	114	1.2535	4.3895	3.9852	0.4043	2.7317	0.148	0.477	-0.0024	0.148

**Tabla D.19 Resultados experimentales de arroz con cáscara a 110°C, 67kPa y 2.33m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110	107	1.2478	5.907	4.8956	1.0114	3.6478	0.277	1	-0.0041	0.287
2	5	110.4	107	1.2436	3.6001	3.0591	0.541	1.8155	0.297	1.074	0.00873	0.284
3	8	109	110	1.2416	2.7845	2.4538	0.3307	1.2167	0.271	0.980	0.03166	0.224
4	11	109.7	112	1.2371	2.4158	2.239	0.1768	0.9999	0.176	0.637	0.00636	0.164
5	15	110.6	114	1.2391	2.9371	2.7149	0.2222	1.468	0.151	0.545	0.00449	0.144
6	18	109.9	115	1.2469	2.1153	2.0091	0.1062	0.7703	0.137	0.497	0.00526	0.124
7	23	110	116	1.2388	4.5976	4.2622	0.3354	3.0073	0.111	0.402	0.00058	0.110
8	28	108.8	117	1.2549	5.4093	5.0003	0.409	3.7667	0.108	0.391	0.00020	0.107
9	36	110.3	119	1.2336	4.4805	4.1679	0.3126	2.9226	0.106	0.385	0.00088	0.10
10	50	105.7	120	1.2453	3.1047	2.9431	0.1616	1.7075	0.094	0.341	0.00081	0.090
11	60	110.1	120	1.2356	3.8916	3.5817	0.3099	3.5817	0.086	0.312	-0.0014	0.086

**Tabla D.20 Resultados experimentales de arroz con cáscara a 100°C, 67kPa y 2.51m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg agua/ kg sólido seco]	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	98.4	99	1.2434	6.608	5.3516	1.2564	4.1082	0.305	1	0.00242	0.299
2	5	102.3	99	1.2456	9.8286	7.8801	1.9485	6.6345	0.293	0.960	-0.0085	0.306
3	8	100.7	100	1.2416	9.7316	7.6768	2.0548	6.4352	0.319	1.044	-0.0011	0.321
4	11	103.5	101	1.2418	4.1848	3.4668	0.718	2.225	0.322	1.055	-0.0050	0.332
5	15	95.1	103	1.2408	9.1627	7.1401	2.0226	5.8993	0.342	1.121	0.00318	0.338
6	18	97.6	103	1.2366	9.2085	7.2157	1.9928	5.9791	0.333	1.089	0.00594	0.318
7	23	103.4	104	1.2332	3.272	2.7972	0.4748	1.564	0.303	0.992	0.00759	0.284
8	28	101	105	1.2475	3.9597	3.3905	0.5692	2.143	0.265	0.868	0.00122	0.260
9	36	100.8	107	1.2535	4.1759	3.5806	0.5953	2.3271	0.255	0.836	0.00150	0.245
10	50	101.6	108	1.2455	8.0513	6.7577	1.2936	5.5122	0.234	0.767	0.00529	0.208
11	60	100.2	107	1.2381	6.7046	5.8638	0.8408	4.6257	0.181	0.594	-0.0030	0.181

**Tabla D.21 Resultados experimentales de arroz con cáscara a 105°C, 67kPa y 2.51m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg] agua/ kg sólido seco	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	105.5	104	1.2429	5.183	4.3038	0.8792	3.0609	0.287	1	-0.0092	0.310
2	5	105.9	104	1.2419	3.3188	2.7997	0.5191	1.5578	0.333	1.160	0.00045	0.332
3	8	105.9	104	1.2369	4.9453	4.0213	0.924	2.7844	0.331	1.155	0.00180	0.329
4	11	105.8	105	1.2365	5.8402	4.7072	1.133	3.4707	0.326	1.136	0.00092	0.324
5	15	104.7	105	1.2436	5.0907	4.152	0.9387	2.9084	0.322	1.123	0.00670	0.312
6	18	103.5	105	1.2314	5.3747	4.4121	0.9626	3.1807	0.302	1.053	0.00627	0.286
7	23	102.5	105	1.2438	8.9419	7.2993	1.6426	6.0555	0.271	0.944	0.00216	0.265
8	28	108.1	105	1.2515	4.2646	3.642	0.6226	2.3905	0.260	0.906	0.00533	0.239
9	36	105.9	109	1.234	5.565	4.7905	0.7745	3.5565	0.217	0.758	0.00152	0.207
10	50	102.6	110	1.2321	5.4883	4.7895	0.6988	3.5574	0.196	0.683	0.00609	0.165
11	60	106.7	113	1.2354	7.8368	7.0491	0.7877	5.8137	0.135	0.471	-0.002	0.135

**Tabla D.22 Resultados experimentales de arroz con cáscara a 110°C, 67kPa y 2.47m/s.**

Muestra	Tiempo [min]	T <sub>entrada</sub> [°C]	T <sub>lecho</sub> [°C]	W <sub>ch</sub> [g]	W <sub>ch+ph</sub> [g]	W <sub>ch+ps</sub> [g]	m <sub>agua</sub> [g]	sólido seco [g]	C [kg] agua/ kg sólido seco	C/C <sub>o</sub>	dC/dt	C <sub>promedio</sub>
1	0	110	107	1.2329	6.9471	5.6143	1.3328	4.3814	0.304	1	0.00424	0.293
2	5	100.8	107	1.2443	3.4736	2.9819	0.4917	1.7376	0.282	0.930	-0.0080	0.295
3	8	121.2	107	1.2438	2.1337	1.9246	0.2091	0.6809	0.307	1.009	0.02124	0.275
4	11	112.1	107	1.2437	1.5674	1.5052	0.0622	0.2556	0.243	0.799	0.00492	0.233
5	15	107.2	108	1.2496	4.8814	4.2146	0.6668	2.9812	0.223	0.735	-0.0015	0.226
6	18	107.3	108	1.2334	1.6416	1.5709	0.0707	0.3095	0.228	0.750	0.00072	0.226
7	23	110.1	109	1.2614	5.403	4.6374	0.7656	3.4056	0.224	0.739	0.00308	0.217
8	28	104.3	113	1.2318	5.2314	4.5406	0.6908	3.2994	0.209	0.688	0.00054	0.207
9	36	113.5	117	1.2412	3.3007	2.9498	0.3509	1.7117	0.205	0.673	0.00192	0.191
10	50	109	117	1.2381	4.7963	4.2609	0.5354	3.007	0.178	0.587	0.00476	0.154
11	60	118	119	1.2539	4.8265	4.2696	0.5569	4.2696	0.130	0.428	-0.0021	0.130

