

SUPPLEMENTARY MATERIAL TO
**Development of a new thin-layer drying model and multicriteria
assessment of phytochemical stability and antioxidant activity in olive
leaves**

TAOUS KADDOUR^{1*}, NASSIMA CHAHER-BAZIZI¹, SIDALI ZAIDI^{1,2}, FARID
CHEBROUK^{3,4}, NAIMA SAIDENE¹, LAMIA HANIFI¹, LYDIA KAROU¹, AND
MOSTAPHA BACHIR-BEY¹

¹Université de Bejaia, Faculté des Sciences de la Nature et de la Vie, Laboratoire de Biochimie Appliquée, 06000 Bejaia, Algeria, ²Centre de Recherche en Technologies Agroalimentaires, Route de Targa Ouzemmour, Campus Universitaire, Bejaia, 06000, Algeria, ³Centre de Recherche Scientifique et Technique en Analyses Physico-Chimiques (CRAPC), BP384, Bou-Ismaïl, Tipaza 42004, Algeria, and ⁴Technical Platform for Physico-chemical Analyzes (PTAPC-Bejaia), Targa Ouzemmour, 06000 Bejaia, Algeria.

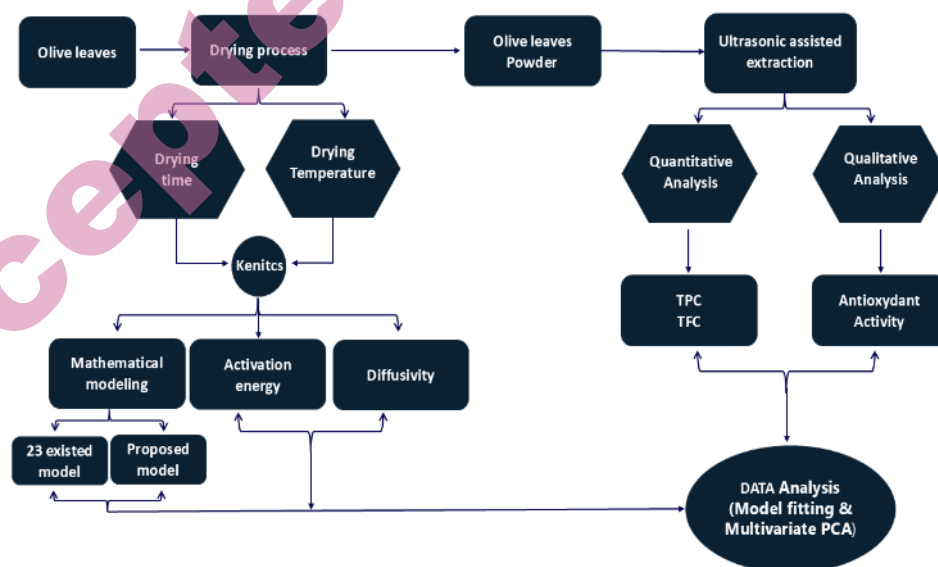


Fig S1. Schematic representation of the experimental and modeling workflow

* Corresponding author. E-mail: taous.kaddour@univ-bejaia.dz

Table SI. Statistical analysis with drying constants and coefficients for best models to the drying data for olive leaves

Model	T (°C)	Coefficient			R ²	RMSE	X2
01	40°C	k1= -0.003819	k2= 0.000719		0.998911	0.012146	0.000164
	70°C	k1= -0.022529	k2= -0.00066		0.999347	0.010627	0.000144
	95°C	k1= -0.029318	k2= -0.000123		0.990347	0.048743	0.004163
	120°C	K1= -0.082837	k2= -0.017606		0.999697	0.008444	0.000051
02	40°C	k= 0.001395	a= 0.381453	b= 3.4 50121	0.998442	0.014527	0.000248
	70°C	k= 0.032718	a= -0.831715	b= 0.828078	0.999321	0.011616	0.000123
	95°C	k= 0.099245	a= 51.413611	b= 1.014038	0.998309	0.019816	0.000462
	120°C	k= 0.050079	a= -3.279577	b= 0.059849	0.999243	0.013355	0.000132
03	40°C	L2= 8.272125	L1= 0.000243	L= 1.454240	0.998635	0.013596	0.000217
	70°C	L2= 0.208316	L1= 0.001643	L= 0.942256	0.999347	0.011391	0.000118
	95°C	L2= 0.990101	L1= -0.009898	L= 1.001808	0.992057	0.042874	0.002163
	120°C	L2= -0.880798	L1= 0.0156687	L= 0.651878	0.999762	0.007495	0.000042
04	40°C	a= -0.001369	b= 0.000001	c= 0.002284	0.999471	0.008469	0.000084
	70°C	a= -0.012708	b= 0.000044	c= 0.010398	0.999480	0.010170	0.000094
	95°C	a= -0.031909	b= 0.0002447	c= 0.015227	0.996326	0.029190	0.001002
	120°C	a= -0.067679	b= 0.0011519	c= 0.0192123	0.999771	0.007352	0.000040
05	40°C	k= 0.010964	a= 1.023135	n= 0.777545	0.996374	0.022146	0.000577
	70°C	k= 0.018928	a= 0.9815445	n= 1.0495056	0.999350	0.011368	0.000117
	95°C	k= 0.0175549	a= 0.9618407	n= 1.3719535	0.998619	0.017904	0.000356
	120°C	k= 0.0504214	a= 0.9617275	n= 1.2942704	0.998529	0.018614	0.000247
06	40°C	k= 0.002047 c= 8.327227	a= -17.4482873 g= 10.128217	b= 0.001774 n= 0.002552	0.999690	0.006486	0.000060
	70°C	k= 0.030879 c= 10.547283	a= -19.8943682 g= 0.030403	b= 10.329957 n= 0.030442	0.999446	0.009007	0.000085
	95°C	k= 0.015829 c= 17.117958	a= -27.1340325 g= 0.011842	b= 11.033107 n= 0.020286	0.997185	0.025557	0.000933
	120°C	k= 0.057913 c= -7.209278	a= 15.4289831 g= 0.055421	b= -7.209209 n= 0.0554505	0.999295	0.012886	0.000138
07	40°C	k1= -0.000367 b= 0.779311	k2= 0.002779 n= 1.090442	a= 0.222499	0.999771	0.005568	0.000041
	70°C	k1= -0.048625 b= 21.255933	k2= 0.047499 n= 0.923290	a= -20.269316	0.999492	0.010052	0.000101
	95°C	k1= -0.055245 b= 16.738344	k2= 0.053380 n= 1.164573	a= -15.771114	0.998835	0.016444	0.000361
	120°C	k1= -0.048935 b= -14.994557	k2= 0.047342 n= 1.105419	a= 15.980582	0.999594	0.009779	0.000077
08	40°C	k= 0.003859	a= 0.908836	c= 0.098190	0.999680	0.006587	0.000051
	70°C	k= 0.022133	a= 1.009845	c= -0.019821	0.999378	0.011119	0.000112
	95°C	k= 0.0519430	a= 1.078502	c= -0.041092	0.994838	0.034586	0.001407
	120°C	k= 0.087511	a= 1.120044	c= -0.104197	0.998968	0.015594	0.000180

Table SI. Cont.

Model	T (°C)	Coefficient			R ²	RMSE	X ²
09	40°C	k= 0.098190	a= 0.003860	b= 0.908836	0.999680	0.039035	0.001793
	70°C	k= 0.023375	a= -3895.791660 3887.371070	b= -	0.999159	0.012931	0.000152
	95°C	k= 0.100305	a= 0.430815	b= 1.391535	0.999151	0.014042	0.000232
	120°C	k= 0.16820	a= 0.631227	b= 1.58191709	0.998941	0.015798	0.000185
10	40°C	k= 0.004270	a= 1.007262 n= 0.959631	b= 0.000078	0.999532	0.007966	0.000079
	70°C	k= 0.020327	a= 0.984783 n= 1.028595	b= -0.000064	0.999374	0.011154	0.000118
	95°C	k= 0.016718	a= 0.959699 n= 1.390765	b= 0.000099	0.998667	0.017595	0.000387
	120°C	k= 0.065670	a= 0.981650 n= 1.164911	b= -0.001454	0.999423	0.011665	0.000105
11	40°C	k= 0.003390	a= 0.999007	b= 0.000056	0.999437	0.008731	0.000090
	70°C	k= 0.022633	a= 0.991352	b= -0.000117	0.999348	0.011388	0.000118
	95°C	k= 0.054917	a= 1.041809	b= -0.000411	0.994316	0.036289	0.001549
	120°C	k= 0.096453	a= 1.020746	b= -0.002757	0.998650	0.017832	0.000236
12	40°C	k= 0.003952 a= 0.892554	k1= 0.000154 b= 0.058533	k2= 0.000146 c= 0.057189	0.999771	0.006486	0.000060
	70°C	k= 0.019069 a= 1.719369	k1= 0.014853 b= -0.365901	k2= 0.014816 c= -0.365897	0.999428	0.010660	0.000120
	95°C	k= 0.080386 a= 1.873750	k1= 0.143098 b= -0.451361	k2= 0.149889 c= -0.4519369	0.998377	0.019409	0.000538
	120°C	k= 0.113769 a= 0.351243	k1= 0.113773 b= 0.377793	k2= 0.113776 c= 0.332863	0.999295	0.012886	0.000138
13	40°C	k= 0.009546	n= 0.796658		0.996147	0.022830	0.000579
	70°C	k= 0.021502	n= 1.022001		0.999234	0.010477	0.000095
	95°C	k= 0.024499	n= 1.274924		0.998125	0.020861	0.000484
	120°C	k= 0.062029	n= 1.226162		0.998143	0.020914	0.000312
14	40°C	k= 0.002912	n= 0.796655		0.996147	0.022830	0.000579
	70°C	k= 0.023355	n= 1.022001		0.999234	0.012340	0.000132
	95°C	k= 0.054515	n= 1.274920		0.998125	0.020861	0.000484
	120°C	k= 0.103585	n= 1.226163		0.998143	0.020914	0.000312
15	40°C	a= 229.644795	b= 0.887243		0.997273	0.019211	0.000410
	70°C	a= 37.029525	b= 0.735742		0.998113	0.019363	0.000326
	95°C	a= 16.527351	b= 0.733099		0.986383	0.056056	0.003491
	120°C	a= 9.383716	b= 0.642784		0.996727	0.027757	0.000550

Table SI. Cont.

Model	T (°C)	Coefficient			R ²	RMSE	X2
16	40°C	k= 0.000762	k1= -0.000005 b= 0.001649	a= -0.998384	0.998247	0.015408	0.000297
	70°C	k= 0.016637	k1= 0.01438 b=1.505347	a= 0.529942	0.999464	0.010320	0.000101
	95°C	k= 0.013724	k1= 0.098009 b=1.221926	a= 0.250348	0.999190	0.013715	0.000235
	120°C	k= 0.113774	k1= 0.000007 b= 0.697898	a= -0.34277	0.993307	0.039656	0.001210
17	40°C	k= 0.003951	k1= 0.000150 b= 0.115722	a= 0.892555	0.999686	0.006520	0.000053
	70°C	k= 0.018580	k1= 0.015648 b= -1.21557	a= 2.203067	0.999430	0.010650	0.000108
	95°C	k= 0.034595	k1= 0.035226 b= 27.845496	a= -26.814674	0.995873	0.030934	0.001196
	120°C	k= 0.113779	k1= 0.113739 b= 0.292598	a= 0.769283	0.999296	0.012885	0.000128
18	40°C	k0= 0.001837	k1= 0.255846	a= 0.012689	0.998843	0.012520	0.000184
	70°C	k0= -0.016396	k1= 37638.4677	a= 0.000001	0.999157	0.012945	0.000152
	95°C	k0= -0.052156	k1= 3384.64683	a= 0.0000156	0.992059	0.042869	0.002162
	120°C	k0= -0.0325268	k1= -0.139082	a= -0.518088	0.999169	0.013997	0.000145
19	40°C	k= 0.000150	k1= 0.0039519 b= 0.892555	a= 0.1157214	0.999686	0.006520	0.000053
	70°C	k= 0.017886	k1= 0.016586 b= -3.264058	a= 4.251483	0.999430	0.010643	0.000108
	95°C	k= 0.035952	k1= 0.033844 b= -7.669691	a= 8.700528	0.995871	0.030941	0.001197
	120°C	k= 0.055866	k1= 0.057495 b= -22.187362	a= 23.197819	0.999296	0.012885	0.000128
20	40°C	k= 0.000038	a= 0.101103	g= 0.003833	0.999653	0.006852	0.000055
	70°C	k= 0.018591	a= 7.096937	g= 0.017917	0.999347	0.007669	0.000053
	95°C	k= 0.0315401	a= -7.806896	g= 0.0335679	0.995346	0.032846	0.001269
	120°C	k= 0.055402	a= 70.6838244	g= 0.054878	0.999248	0.013310	0.000131
21	40°C	k0= 0.400000	a= 0.262957 n= 12.000000	b= -0.737043	0.999653	0.043453	0.002360
	70°C	k0= 0.020727	a= -0.013581 n= 1.0192754	b= -0.999505	0.999388	0.011027	0.000116
	95°C	k0= -0.000107	a= 1985.30872 n= 0.398439	b= 1984.2064	0.998668	0.017585	0.000387
	120°C	k0= 0.065916	a= -0.053880 n= 1.141884	b= -1.03753	0.999486	0.011005	0.000093
22	40°C	a= 0.002648	b= 0.003418	c= -0.000084	0.999440	0.008708	0.000089
	70°C	a= -0.010524	b= 0.0223425	c= 0.0000534	0.999364	0.011247	0.000115
	95°C	a= 0.025655	b= 0.055146	c= 0.000780	0.993729	0.038111	0.001709
	120°C	a= 0.016326	b= 0.097210	c= 0.003274	0.998577	0.018310	0.000248

Table SI. Cont.

Model	T (°C)	Coefficient			R ²	RMSE	X ²
23	40°C	k= 0.009643	a= 0.004954 m= 0.711223	n= 0.940261	0.999108	0.010991	0.000151
	70°C	k= 0.001577	a= 0.034676 m= 1.233023	n= 0.811547	0.999697	0.007608	0.000055
	95°C	k= 0.154281	a= 0.035776 m= 0.627855	n= 1.30876	0.997281	0.025119	0.000789
	120°C	k= 0.007141	a= 0.092150 m= 1.346085	n= 0.90386	0.999814	0.006619	0.000034
24	40°C	k= 0.0038598	a= 0.098191	b= -9.255798	0.999359	0.007147	0.000051
	70°C	k= 0.0223362	a= -0.015094	b= 66.627473	0.999058	0.009187	0.000084
	95°C	k= 0.0460301	a= -0.02463	b= 42.064027	0.999024	0.011001	0.000121
	120°C	k= 0.0832603	a= -0.098812	b= 11.089069	0.999278	0.007722	0.000059