Modelling the drying characteristics of the traditional Indonesian crackers "kerupuk"

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Electronic supplementary material (ESM)

Table 1. Evaluation of the mathematical drying models

Kerupuk types	Model	Temp (°C)	Constants	SSE	r	RMSE
Garlic flavour	newton	50	$k = 0.00916$	0.04436	0.99467	0.02009
		60	$k = 0.00994$	0.07099	0.98330	0.03146
		70	$k = 0.01613$	0.03120	0.99496	0.02336
	page	50	$k = 0.00193, n = 1.32652$	0.00620	0.99858	0.02517
		60	$k = 0.00179, n = 1.36392$	0.03377	0.99092	0.04512
		70	$k = 0.00362, n = 1.34663$	0.00144	0.99958	0.01067
	two terms	50	$k = 0.01032, k_1 = 0.99869, a = 1.1230, b = -0.1230$	0.02574	0.99447	0.04129
		60	$k = 0.01068, k_1 = 0.99950, a = 1.0743, b = -0.0743$	0.06452	0.98235	0.04604
		70	$k = 0.01880, k_1 0.99980, a = 1.1827, b = -0.1828$	0.01220	0.99668	0.03139
	midilli	50	$k = 0.00169, n = 1.3413, a = 0.9761, a_1 = -0.00006$	0.00380	0.99903	0.00102
		60	$k = 0.00045, n = 1.6294, a = 0.9122, a_1 = -0.00003$	0.02212	0.99339	0.00012
		70	$k = 0.00336, n = 1.3576, a = 0.9874, a_1 = -0.00003$	0.00109	0.99964	0.00076
	henderson and pabis	50	$k = 0.00979, a = 1.0672$	0.03395	0.98338	0.04857
		60	$k = 0.01030, a = 1.0398$	0.06748	0.95976	0.04950
		70	$k = 0.01708, a = 1.0660$	0.02400	0.98529	0.04526

Kerupuk types	Model	Temp (°C)	Constants	SSE	r	RMSE
	logarithmic	50	$k = 0.00767$, $a = 1.151018$, $c = -0.11402$	0.01324	0.99331	0.00011
		60	$k = 0.007159$, $a = 1.190265$, $c = -0.18814$	0.03782	0.97748	0.0000003
		70	$k = 0.014217$, $a = 1.1199$, $c = -0.07616$	0.01201	0.99226	0.0000016
Chili flavour	newton	50	$k = 0.01119$	0.01961	0.99724	0.01626
		60	$k = 0.02045$	0.00664	0.99837	0.00493
		70	$k = 0.02096$	0.00582	0.99864	0.00852
	page	50	$k = 0.00405$, $n = 1.2202$	0.00265	0.99934	0.00749
		60	$k = 0.01089$, $n = 1.1544$	0.00100	0.99970	0.01015
		70	$k = 0.01143$, $n = 1.1492$	0.00056	0.99981	0.00559
	two terms	50	$k = 0.01231$, $k_1 = 0.9986$, $a = 1.0996$, $b = -0.0996$	0.01007	0.99758	0.02456
		60	$k = 0.02265$, $k_1 = 0.9995$, $a = 1.1146$, $b = -0.1146$	0.00164	0.99944	0.00093
		70	$k = 0.02315$, $k_1 = 0.9998$, $a = 0.9998$, $b = -0.1117$	0.00123	0.99956	0.00479
	midilli	50	$k = 0.00347$, $n = 1.2492$, $a = 0.9842$, $a_1 = -2.3454$	0.00232	0.99939	0.00029
		60	$k = 0.01031$, $n = 1.1700$, $a = 0.9995$, $a_1 = 0.00003$	0.00077	0.99974	0.00185
		70	$k = 0.01085$, $n = 1.1639$, $a = 0.9992$, $a_1 = 0.00003$	0.00045	0.99984	0.00081
	henderson and pabis	50	$k = 0.01170$, $a = 1.0485$	0.01486	0.99262	0.03166
		60	$k = 0.02105$, $a = 1.0318$	0.00519	0.99649	0.01197
		70	$k = 0.02155$, $a = 1.0302$	0.00453	0.99677	0.01576
	logarithmic	50	$k = 0.01068$, $a = 1.0726$, $c = -0.0372$	0.00983	0.99483	0.000012
		60	$k = 0.02052$, $a = 1.0372$, $c = -0.0088$	0.00477	0.99674	0.0000006
		70	$k = 0.02058$, $a = 1.0401$, $c = -0.0158$	0.00359	0.99735	0.0000020
Seeweed flavour	newton	50	$k = 0.01155$	0.01432	0.99815	0.01164
		60	$k = 0.01757$	0.00364	0.99837	0.00232
		70	$k = 0.02842$	0.00082	0.99970	0.00997
	page	50	$k = 0.00468$, $n = 1.1968$	0.00061	0.99984	0.00299
		60	$k = 0.01161$, $n = 1.0979$	0.00085	0.99973	0.00703
		70	$k = 0.02790$, $n = 1.0049$	0.00082	0.99971	0.01059
	two terms	50	$k = 0.01270$, $k_1 = 0.9986$, $a = 1.0991$, $b = -0.0990$	0.00537	0.99870	0.01845
		60	$k = 0.01880$, $k_1 = 0.9995$, $a = 1.0724$, $b = -0.0723$	0.00102	0.99965	0.00052

Kerupuk types	Model	Temp (°C)	Constants	SSE	r	RMSE
		70	$k = 0.02886$, $k_1 = 0.9998$, $a = 1.0161$, $b = -0.0161$	0.00076	0.99975	0.01115
	midilli	50	$k = 0.00436$, $n = 1.2104$, $a = 0.9924$, $a_1 = -0.0000003$	0.00054	0.99985	0.00001
		60	$k = 0.01033$, $n = 1.1304$, $a = 0.9988$, $a_1 = 0.00006$	0.00046	0.99985	0.00181
		70	$k = 0.02637$, $n = 1.0229$, $a = 1.0013$, $a_1 = 0.00004$	0.00054	0.99977	0.00179
	henderson and pabis	50	$k = 0.01209$, $a = 1.0469$	0.00998	0.99476	0.02642
		60	$k = 0.01797$, $a = 1.0241$	0.00275	0.99818	0.00784
		70	$k = 0.02850$, $a = 1.0028$	0.00081	0.99937	0.00944
	logarithmic	50	$k = 0.01104$, $a = 1.0702$, $c = -0.0358$	0.00605	0.99665	0.000046
		60	$k = 0.01759$, $a = 1.0285$, $c = -0.0074$	0.00251	0.99829	0.0000005
		70	$k = 0.02909$, $a = 0.9991$, $c = 0.0062$	0.00058	0.99951	0.0000007

SSE – the standard error of estimate; r – the coefficient of correlation; RMSE – the root mean square error; a, a_1, b, c, k, k_1, n – the constants in the models