

Table 1S Power law modelling and Arrhenius coefficients in dynamic rheology for gluten free bread dough samples

Power law modelling of dynamic rheology					
G'_{ω_1} (Pa)		4.629 ± 0.02^c	4.737 ± 0.04^b	4.806 ± 0.01^a	4.880 ± 0.02^a
a		0.126 ± 0.01^a	0.099 ± 0.03^b	0.095 ± 0.02^b	0.081 ± 0.01^c
R^2		0.984	0.982	0.985	0.977
G''_{ω_2} (Pa)		3.870 ± 0.05^c	4.152 ± 0.03^b	4.276 ± 0.04^a	4.333 ± 0.02^a
b		0.189 ± 0.02^a	0.133 ± 0.04^b	0.109 ± 0.01^c	0.102 ± 0.02^c
R^2		0.984	0.990	0.994	0.994
Arrhenius coefficients					
First order reaction	k_0 (s ⁻¹)	$20231.30 \times 10^{-12a}$	4822.12×10^{-12b}	0.003×10^{-12d}	9.61×10^{-12c}
	E_a (kJ/mol)	-75.20 ± 0.23^a	-79.33 ± 0.06^b	-120.75 ± 0.42^d	-97.87 ± 0.26^c
	R^2	0.991	0.976	0.951	0.737
Second order reaction	k_0 (mol ⁻¹ Ls ⁻¹)	3434.62×10^{-2a}	146.01×10^{-4c}	1180.66×10^{-4b}	1.76×10^{-8d}
	E_a (kJ/mol)	66.04 ± 0.02^b	44.57 ± 0.13^c	91.01 ± 0.24^a	0.02 ± 0.01^d
	R^2	0.777	0.306	0.759	0.251

Table 2S Rate constant for dynamic modulus at different time period

Time (sec)	Rate constant	First order kinetic model				Second order kinetic model			
		Control	Q40	Q50	Q60	Control	Q40	Q50	Q60
135	k ₁₃₅	372.9× 10 ^{-5b}	31.6× 10 ^{-4a}	34.2× 10 ^{-4a}	32.1× 10 ^{-4a}	61.14× 10 ^{-9a}	21.5× 10 ^{-9c}	44.8× 10 ^{-9b}	0.74× 10 ^{-9d}
338	k ₃₃₈	74.81× 10 ^{-5a}	9.93× 10 ^{-4b}	10.2× 10 ^{-4b}	9.98× 10 ^{-4b}	6.12× 10 ^{-9b}	3.76× 10 ^{-9c}	12.7× 10 ^{-9a}	3.32× 10 ^{-9c}
608	k ₆₀₈	5.78× 10 ^{-5a}	1.41× 10 ^{-4b}	1.97× 10 ^{-4b}	1.92× 10 ^{-4b}	7.77× 10 ^{-9a}	6.64× 10 ^{-9b}	0.58× 10 ^{-9c}	6.36× 10 ^{-9b}
900	k ₉₀₀	0.35× 10 ^{-4b}	0.46× 10 ^{-4a}	0.49× 10 ^{-4a}	0.15× 10 ^{-4c}	5.38× 10 ^{-9b}	5.69× 10 ^{-9b}	1.31× 10 ^{-9c}	6.44× 10 ^{-9a}
1260	k ₁₂₆₀	0.81× 10 ^{-4a}	0.83× 10 ^{-4a}	0.48× 10 ^{-4b}	0.54× 10 ^{-4b}	1.96× 10 ^{-9b}	2.84× 10 ^{-9b}	0.66× 10 ^{-9c}	5.31× 10 ^{-9a}
1800	k ₁₈₀₀	3.67× 10 ^{-5c}	4.31× 10 ^{-4b}	4.95× 10 ^{-4b}	5.64× 10 ^{-4a}	6.34× 10 ^{-9a}	4.40× 10 ^{-9b}	6.06× 10 ^{-9a}	2.42× 10 ^{-9c}
2030	k ₂₀₃₀	57.63× 10 ^{-5a}	6.33× 10 ^{-4b}	6.97× 10 ^{-4b}	5.79× 10 ^{-4b}	9.27× 10 ^{-9a}	6.28× 10 ^{-9b}	7.11× 10 ^{-9b}	2.56× 10 ^{-9c}

Mean values of duplicate data. Different letters in the same row in each group used as superscripts indicate differences ($p < 0.05$) amongst the means.