Supplementary material: Dogruer et al., Formulation of Gluten-Free Cookies Utilizing Chickpea, Carob, and Hazelnut Flours Through Mixture Design

Table S1. Statistical parameters of simplex-centroid mixture design models for the rheological properties of the cookie doughs obtained from analysis of variance*

Response	Model**	R^2	R^2adj	p model
Consistency	$0.533 * x_1 + 0.743 * x_2 + 0.058 * x_3 - 0.026 * x_1 * x_2 - 0.006 * x_1 * x_3 - 0.024 x_2 * x_3 + 0.001 * x_1 * x_2 * x_3$	94.3	92.5	0.000
Firmness	$0.153 * x_1 + 0.222 * x_2 + 0.008 * x_3 - 0.007 * x_1 * x_2 - 0.001 * x_1 * x_3 - 0.007 * x_2 * x_3$	96.7	95.6	0.000
Viscosity index	$0.066 * x_1 + 0.124 * x_2 - 0.001 x_3 - 0.003 * x_1 * x_2 - 0.004 * x_1 * x_3$	94.5	92.8	0.000
Cohesiveness	$0.067 * x_1 + 0.117 * x_2 - 0.01 * x_3 - 0.003 * x_1 * x_2 + 0.001 * x_1 * x_3 - 0.003 * x_2 * x_3$	94.8	93.2	0.000

* It's not possible to calculate the lack-of-fit test for this particular design because mixture model has already utilized all the available degrees of freedom.

* x_1: chickpea flour; x_2: carob flour; x_3: hazelnut flour

Table S2. Statistical parameters of simplex-centroid mixture design models for the technological properties of the baked cookies obtained from analysis of variance

Response	Model*	R^2	R^2adj	p model	p lack of fit
Moisture	$0.022 * x_1 + 0.122 * x_2 + 0.049 * x_3 + 0.002 * x_1 * x_2 + 0.002 * x_1 * x_3$	61.9	58.8	0.000	0.1
Baking weight loss	$0.198 * x_1 + 0.105 * x_2 + 0.218 * x_3 - 0.005 * x_1 * x_3 + 0.002 * x_2 * x_3$	64.2	62.7	0.000	0.000
Spread ratio	$0.048 * x_1 + 0.039 * x_2 + 0.147 x_3 - 0.002 * x_1 * x_3 - 0.001 * x_2 * x_3$	95.7	95.5	0.000	0.467
Hardness	$0.1 * x_1 + 0.178 * x_2 + 0.064 * x_3 - 0.003 * x_1 * x_2 - 0.003 * x_1 * x_3 - 0.002 * x_2 * x_3$	71.6	70.1	0.000	0.000

* x_1: chickpea flour; x_2: carob flour; x_3: hazelnut flour