

Supplementary Material (SM)

Optimizing the Extraction of Phenolic Compounds with High Antioxidant Activity from Mango Seed Kernel Wastes Using Response Surface Methodology

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SM 1 Factors levels of the design of experiment

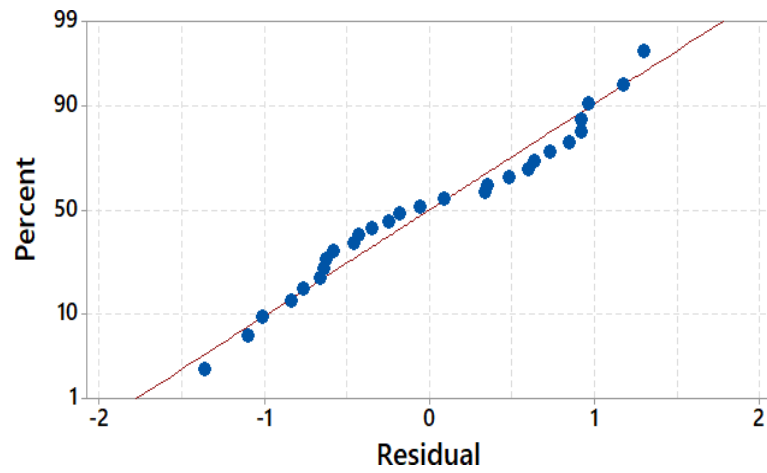
Factors	Parameters	Coded levels				
		+ α	High	Center	Low	- α
x ₁	Temperature	66°C	60°C	45°C	30°C	25°C
x ₂	% Ethanol	85%	75%	50%	25%	15%

SM 2 Particle size distribution of mango seed kernel powders

Mesh Size	Average diameter (mm)	Particle size (mm)	% Particle retained
> 6.30 mm	6.30	2.37 ± 0.42	53.06 ± 5.82
3.15 mm – 6.30 mm	4.73	1.53 ± 0.51	34.34 ± 2.48
850 µm – 3.15 mm	2.00	0.53 ± 0.16	12.19 ± 4.62
450 µm – 850 µm	0.65	0.01 ± 5.05 x 10 ⁻³	0.33 ± 0.13
250 µm – 450 µm	0.35	2.27 x 10 ⁻³ ± 6.66 x 10 ⁻⁴	0.05 ± 0.02
180 µm – 250 µm	0.22	4.67 x 10 ⁻⁴ ± 1.16 x 10 ⁻⁴	0.01 ± 2.56 x 10 ⁻³
< 180 µm	0.18	7.67 x 10 ⁻⁴ ± 2.08 x 10 ⁻⁴	0.02 ± 4.83 x 10 ⁻³

SM 3 Analysis of variance (ANOVA) of response surface regression

Source	Total degrees of freedom	Adjusted sums of squares	Adjusted mean squares	F-value	p-value
Model	4	49.29	12.32	18.00	0.00
Linear	2	21.01	10.51	15.35	0.00
x ₁	1	19.47	19.47	28.44	0.00
x ₂	1	1.54	1.54	2.25	0.15
Square	2	28.28	14.14	20.66	0.00
x ₁ · x ₁	1	3.05	3.05	4.46	0.05
x ₂ · x ₂	1	26.44	26.44	38.63	0.00
Error	23	15.74	0.68		
Lack-of-Fit	4	8.25	2.06	5.23	0.01
Pure Error	19	7.49	0.39		
Total	27	65.04			



SM 4 Normal probability plot of residuals in response surface regression.