

Supercritical fluid extraction, LC-MS profiling, and QbD-guided green HPLC method for standardization of *Careya arborea* Roxb. nanoemulsion

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SUPPLEMENTARY MATERIAL

Table S1a. ANOVA for response surface analysis by DoE-based Central Composite design (Y1=RT EGCG)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	2.33	5	0.4668	248.59	< 0.0001	significant
A-Organic Phase	2.05	1	2.05	1090.91	< 0.0001	
B-Flow Rate	0.1744	1	0.1744	92.88	0.0002	
AB	0.0159	1	0.0159	8.45	0.0335	
A ²	0.0542	1	0.0542	28.84	0.0030	
B ²	0.0178	1	0.0178	9.45	0.0276	
Residual	0.0094	5	0.0019			
Lack of Fit	0.0090	3	0.0030	14.07	0.0671	not significant
Pure Error	0.0004	2	0.0002			
Cor Total	2.34	10				

Table S1b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y1=RT EGCG)

Parameters	Values
R ²	0.9960
Adjusted R ²	0.9920
Predicted R ²	0.9591

Table S2a. ANOVA for response surface analysis by DoE-based Central Composite design (Y2=TF EGCG)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	0.1052	5	0.0210	37.54	0.0006	significant
A-Organic Phase	0.0955	1	0.0955	170.40	< 0.0001	
B-Flow Rate	0.0089	1	0.0089	15.87	0.0105	
AB	0.0002	1	0.0002	0.3015	0.6066	
A²	0.0002	1	0.0002	0.4170	0.5469	
B²	0.0002	1	0.0002	0.4170	0.5469	
Residual	0.0028	5	0.0006			
Lack of Fit	0.0028	3	0.0009	103.13	0.0096	not significant
Pure Error	0.0000	2	9.000E-06			
Cor Total	0.1080	10				

Table S2b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y2=TF EGCG)

Parameters	Values
R²	0.9741
Adjusted R²	0.9481
Predicted R²	0.7669

Table S3a. ANOVA for response surface analysis by DoE-based Central Composite design (Y3=TP EGCG)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	7.167E+05	5	1.433E+05	130.18	< 0.0001	significant
A-Organic Phase	1.887E+05	1	1.887E+05	171.35	< 0.0001	
B-Flow Rate	3056.43	1	3056.43	2.78	0.1566	
AB	7004.02	1	7004.02	6.36	0.0530	
A²	4.663E+05	1	4.663E+05	423.53	< 0.0001	
B²	1361.25	1	1361.25	1.24	0.3168	
Residual	5505.21	5	1101.04			
Lack of Fit	5503.00	3	1834.33	1663.59	0.0006	not significant
Pure Error	2.21	2	1.10			
Cor Total	7.222E+05	10				

Table S3b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y3=TP EGCG)

Parameters	Values
R²	0.9924
Adjusted R²	0.9848
Predicted R²	0.9367

Table S4a. ANOVA for response surface analysis by DoE-based Central Composite design (Y1=RT AzA)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	4.87	5	0.9749	136.22	< 0.0001	significant
A-Organic Phase	4.47	1	4.47	624.37	< 0.0001	
B-Flow Rate	0.2935	1	0.2935	41.01	0.0014	
AB	0.0292	1	0.0292	4.09	0.0992	
A²	0.0708	1	0.0708	9.90	0.0255	
B²	0.0013	1	0.0013	0.1826	0.6870	
Residual	0.0358	5	0.0072			
Lack of Fit	0.0304	3	0.0101	3.75	0.2177	not significant
Pure Error	0.0054	2	0.0027			
Cor Total	4.91	10				

Table S4b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y1=RT AzA)

Parameters	Values
R²	0.9927
Adjusted R²	0.9854
Predicted R²	0.9410

Table S5a. ANOVA for response surface analysis by DoE-based Central Composite design (Y2=TF AzA)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	0.6046	5	0.1209	119.97	< 0.0001	significant
A-Organic	0.5151	1	0.5151	511.05	<	

Phase					0.0001	
B-Flow Rate	0.0250	1	0.0250	24.77	0.0042	
AB	0.0007	1	0.0007	0.6967	0.4419	
A²	0.0515	1	0.0515	51.13	0.0008	
B²	0.0021	1	0.0021	2.13	0.2040	
Residual	0.0050	5	0.0010			
Lack of Fit	0.0049	3	0.0016	21.93	0.0439	not significant
Pure Error	0.0001	2	0.0001			
Cor Total	0.6096	10				

Table S5b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y2=TF AzA)

Parameters	Values
R²	0.9917
Adjusted R²	0.9835
Predicted R²	0.9305

Table S6a. ANOVA for response surface analysis by DoE-based Central Composite design (Y3=TP AzA)

Source	Sum of Squares	df	Mean Square	F-value	p-value	
Model	4.700E+05	5	94002.06	77.53	< 0.0001	significant
A-Organic Phase	1802.67	1	1802.67	1.49	0.2771	
B-Flow Rate	2320.67	1	2320.67	1.91	0.2251	
AB	21170.25	1	21170.25	17.46	0.0087	
A²	4.114E+05	1	4.114E+05	339.33	< 0.0001	
B²	22.80	1	22.80	0.0188	0.8963	
Residual	6062.42	5	1212.48			
Lack of Fit	3828.42	3	1276.14	1.14	0.4982	not significant
Pure Error	2234.00	2	1117.00			
Cor Total	4.761E+05	10				

Table S6b. Fit Statistics for response surface analysis by DoE-based Central Composite design (Y3=TP AzA)

Parameters	Values
R²	0.9873
Adjusted R²	0.9745
Predicted R²	0.9322