Article

A Sustainable Approach for Extracting Non-Extractable Phenolic Compounds from Mangosteen Peel using Ultrasound-Assisted Extraction and Natural Deep Eutectic Solvents

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Table S1. Experimental design obtained by Box–Behnken and total PA content (DMAC and butanol/HCl assays) and antioxidant capacity (FRAP assays and hydroxyl assays, scavenging capacity of ABTS radicals, and capacity to inhibit the formation of hydroxyl radical assays) of the extracts obtained under the established conditions for the extraction of NEPs from mangosteen peel using UAE with ChCl:LA (1:2).

Variables				Response variables				
				Total PA content		**Antioxidant capacity**		
Experiment number	**Water percentage (%)**	**Amplitude (%)**	**Time (min)**	**DMAC (mg epi./100 g sample)**	**Butanol/HCl (mg epi./100 g sample)**	**FRAP (mg GHL/g sample)**	**% scavenging of ABTS radicals**	**Hydroxyl radical (% of hydroxyl radical inhibition)**
1	20	30	15	82.82	21,886.62	19.40	81.71	8.62
2	20	60	15	190.66	94,194.896	154.88	99.01	61.14
3	20	30	1	8.78	440.37123	4.74	19.79	3.36
4	10	45	15	172.63	92,648.105	73.57	98.40	37.91
5	10	60	8	148.27	90,637.278	95.90	98.93	44.45
6	30	60	8	273.97	28,086.002	86.48	98.15	22.33
7	10	30	8	77.74	22,551.74	2.85	73.18	8.56
8	30	30	8	57.83	6279.505	13.56	44.66	4.28
9	30	45	15	236.76	24,497.448	51.73	97.63	18.40
10	20	45	8	173.57	37,567.827	28.07	96.61	15.03
11	20	60	1	32.36	4701.7788	13.88	40.38	5.99
12	30	45	1	15.44	138.7471	8.96	29.01	3.45
13	10	45	1	10.45	1979.4277	8.82	31.30	5.98
14	20	45	8	149.90	30,904.408	10.24	94.72	13.44
15	20	45	8	181.73	38,112.452	23.32	95.85	13.94

Table S2. Coefficients of the multiple linear regression models obtained for the UAE with ChCl:LA (1:2) that best fitted the responses (total PA content (DMAC and butanol/HCl assays) and antioxidant capacity (FRAP assays and hydroxyl assays, scavenging capacity of ABTS radicals, and capacity to inhibit the formation of hydroxyl radical assays)) with the extraction parameters (A: water percentage. B: ultrasound amplitude and C: time) and analysis of variance (ANOVA).

Parameters	Total PA content				Antioxidant capacity					
	DMAC (mg epicatechin/100 g sample)	*p*-value	Butanol/HCl (mg epicatechin/100 g sample)	*p*-value	FRAP (mg GHL/g sample)	*p*-value	% scavenging of ABTS radicals	*p*-value	Hydroxyl radical (% hydroxyl radical inhibition)	*p*-value
Constant	168.4		-68918.1		20.5441		95.7267		23.5597	
A	-10.6676	0.0646	3331.23	0.0371	-1.45761	0.5161	0.0984048	0.0068	0.732842	0.0023
B	8.84796	0.0123	1263.61	0.0300	-7.4698	0.0070	4.28592	0.0005	-1.26785	0.0004
C	17.3985	0.0057	3488.16	0.0166	-9.51265	0.0097	13.0078	0.0001	-2.57153	0.0005
A^2	0.0060875	0.9500	4.35209	0.5591	0.0834815	0.2244	-0.0656708	0.0056	0.0121083	0.1037
A*B	0.242683	0.0479	-77.1317	0.1566	-0.0335304	0.3896	0.0462333	0.0047	-0.02973	0.0082
A*C	0.211214	0.2156	-236.821	0.824	-0.0784972	0.3560	0.00542857	0.5080	-0.0606	0.0091
B^2	-0.131361	0.0753	4.11197	0.6356	0.0924675	0.0494	-0.0463537	0.0022	0.020237	0.0085
B*C	0.200619	0.1256	162.016	0.0136	0.300815	0.0207	-0.00783333	0.2258	0.118786	0.0011
C^2	-1.22834	0.0198	-125.459	0.09	0.140364	0.2885	-0.511726	0.0004	0.0221293	0.1247
R^2	93.6378		99.576		97.8735		97.5032		99.3464	
SD	16.5328		3639.87		9.2302		0.951017		0.813777	
p-value (lack of fit)	0.1219		0.631		0.4046		0.0082		0.0732	