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Table 1 Experimental design and results obtained on the sweetness compounds Oi Sam Suan extracts.

Run	Temperature (°C)	Sonication Time (min)	Ratio (g/mL)	Response 1 (Phenolics)	Response 2 (Flavonoids)	Response 3 (Sugars)
1	40 (-1)	20 (-1)	1:20 (0)	0.2703	0.0401	1.9868
2	80 (1)	20	1:20	0.2933	0.0424	2.1132
3	40	60 (1)	1:20	0.2596	0.0415	2.1592
4	80	60	1:20	0.4398	0.0505	2.2138
5	40	40 (0)	1:10 (-1)	0.5018	0.1222	4.0010
6	80	40	1:10	0.5043	0.1301	4.5374
7	40	40	1:30 (1)	0.1857	0.0092	1.2843
8	80	40	1:30	0.2049	0.0103	1.6847
9	60 (0)	20	1:10	0.5162	0.1213	3.8477
10	60	60	1:10	0.5304	0.1276	4.4464
11	60	20	1:30	0.1986	0.0098	1.3935
12	60	60	1:10	0.5219	0.1270	4.4943
13	60	40	1:20	0.2307	0.0371	2.0155
14	60	40	1:20	0.2410	0.0375	1.9885
15	60	40	1:20	0.2313	0.0368	2.1362
16	60	40	1:20	0.2285	0.0373	2.0328
17	60	40	1:20	0.2323	0.0371	1.8776

Table 2 Model coefficient estimated by multiple linear regression for sweetness compounds of Oi Sam Saun as affected by extraction temperature (X_1), sonication time (X_2) and extraction ratio (X_3).

Coefficient	Phenolics	Flavonoids	Sugars
Constant	0.233*	0.037*	2.010*
Linear			
X_1	0.028*	0.003*	0.140*
X_2	0.027*	0.002*	0.090
X_3	-0.147*	-0.058*	-1.415*
Quadratic			
X_1^2	0.027	0.004*	0.126
X_2^2	0.056*	0.003*	-0.018
X_3^2	0.089*	0.027*	0.741*
Interaction			
$X_1 X_2$	0.039*	0.002*	-0.018
$X_1 X_3$	0.004	-0.002*	-0.034
$X_2 X_3$	0.019	-0.001*	-0.210*
Lack of fit	<0.001	0.003	0.055
R²	0.983	0.999	0.995
Adjusted R²	0.962	0.996	0.988

*significant ($p \leq 0.05$)

Table 3 Optimized extraction conditions (original and adjusted) of Oi Sam Saun UAE extract for sweetness compounds, predicted and experimental values for the optimized response variables and sensory evaluation score.

Response Variables	Conditions			Predicted Value	Experimental Value	Sensory Score			Sweetness intensity
	Temperature (°C)	Time (min)	Ratio (g/mL)			Sweetness	Sourness	Bitterness	
Phenolic ^a				0.4725	0.4833±0.032				
Flavonoid ^b	84	64	1:8	0.1688	0.1489 ± 0.033	6.94±0.28	0.24±0.09	1.26±0.33	166
Sugar ^c				5.2454	4.802 ± 0.651				

^aPhenolic content were expressed as mgGallic equivalent/g dried weight (mgGAE/gDW).

^bFlavonoid content were expressed as mgCatechin equivalent/g dried weight (mgCE/gDW).

^cSugar content were expressed as mgGlucose equivalent/g dried weight (mg/gDW).

Table 4 Phenolic, flavonoid, sugar and 18β-glycyrrhetic acid contents of optimized Oi Sam Saun UAE extract.

Phenolic (mg/g)		Flavonoid (mg/g)		Sugar (mg/g)			18β-glycyrrhetic acid (%)
Gallic acid	<i>p</i> -Coumaric acid	Quercetin	Kaempferol	Sucrose	Glucose	Fructose	
0.108±0.012	0.082±0.007	0.047±0.008	0.031±0.002	1.333±0.098	0.705±0.051	0.891±0.074	0.529 ± 0.002