

1 **Supplement 1.** Box-Behnken central composite design for independent variables and their  
2 response

Runs	A extraction temperature (°C )	B extraction time (h)	C ethanol concentration (%)	D liquid/solid ratio (mL/g)	Yield (%)
1	1 (80)	-1 (2)	0 (30)	0 (20)	2.45
2	0 (70)	0 (2.5)	0 (30)	0 (20)	3.19
3	0 (70)	-1 (2)	-1 (20)	0 (20)	2.20
4	-1 (60)	1 (3)	0 (30)	0 (20)	2.50
5	0 (70)	0 (2.5)	0 (30)	0 (20)	3.08
6	1 (80)	0 (2.5)	-1 (20)	0 (20)	2.41
7	1 (80)	0 (2.5)	0 (30)	1 (25)	2.67
8	-1 (60)	-1 (2)	0 (30)	0 (20)	2.36
9	-1 (60)	0 (2.5)	1 (40)	0 (20)	2.40
10	1 (80)	0 (2.5)	1 (40)	0 (20)	2.39
11	0 (70)	0 (2.5)	0 (30)	0 (20)	3.14
12	-1 (60)	0 (2.5)	0 (30)	1 (25)	2.85
13	0 (70)	0 (2.5)	-1 (20)	-1 (15)	2.33
14	-1 (60)	0 (2.5)	0 (30)	-1 (15)	2.30
15	0 (70)	1 (3)	0 (30)	1 (25)	2.71
16	-1 (60)	0 (2.5)	-1 (20)	0 (20)	2.23
17	0 (70)	0 (2.5)	0 (30)	0 (20)	3.15
18	0 (70)	0 (2.5)	1 (40)	-1 (15)	2.54
19	0 (70)	-1 (2)	0 (30)	1 (25)	2.48
20	0 (70)	-1 (2)	1 (40)	0 (20)	2.28
21	0 (70)	0 (2.5)	-1 (20)	1 (25)	2.49
22	0 (70)	1 (3)	1 (40)	0 (20)	2.63
23	0 (70)	-1 (2)	0 (30)	-1 (15)	2.38
24	0 (70)	1 (3)	0 (30)	-1 (15)	2.79
25	0 (70)	0 (2.5)	0 (30)	0 (20)	3.02
26	0 (70)	0 (2.5)	1 (40)	1 (25)	2.58
27	1 (80)	1 (3)	0 (30)	0 (20)	2.98
28	1 (80)	0 (2.5)	0 (30)	-1 (15)	2.95
29	0 (70)	1 (3)	-1 (20)	0 (20)	2.42