

*Table S.1 Physical and chemical properties of soil*

Available Nitrogen (mg/kg)	Available Phosphorus (mg/kg)	Available Potassium (mg/kg)
48.84	158.92	1775.42



Figure S.1 A, B and C were was 200 mg /kg Cd, 50 mg /kg Cd and untreated melon (control group)

Table S.2 Single factor experiment results of ethanol concentration

Ethanol concentration	Polyphenols (mg/g)	Flavonoids (mg/g)	Saponin (mg/g)	Polysaccharides (mg/g)
20%	0.26 E-03	0.063	0.087	181.188
30%	0.42 E-03	0.052	0.060	209.297
40%	0.75 E-03	0.054	0.049	115.240
50%	2.47 E-03	0.115	0.041	97.947
60%	2.90 E-03	0.116	0.036	45.272
70%	4.17 E-03	0.154	0.039	67.773
80%	4.61 E-03	0.171	0.040	39.215
95%	5.42 E-03	0.204	0.068	32.295

Table S.3 Extract temperature single factor experiment results

Temperature (°C)	Polyphenols (mg/g)	Flavonoids (mg/g)	Saponin (mg/g)	Polysaccharides (mg/g)
30	3.90 E-03	0.190	0.088	40.873
40	3.80 E-03	0.198	0.085	47.109
50	4.32 E-03	0.250	0.096	50.699
60	4.36 E-03	0.251	0.093	43.894
70	4.95 E-03	0.276	0.118	34.534
80	7.55 E-03	0.323	0.133	53.344
90	3.91 E-03	0.190	0.074	42.024

Table S.4 Single factor experiment results of material-liquid ratio

material-liquid ratio	Polyphenols (mg/g)	Flavonoids (mg/g)	Saponin (mg/g)	Polysaccharides (mg/g)
1:10	1.50 E-03	0.092	0.025	14.392
1:20	1.58 E-03	0.127	0.040	13.086
1:30	1.80 E-03	0.131	0.045	23.648
1:40	2.72 E-03	0.172	0.064	59.516
1:50	2.79 E-03	0.171	0.059	60.943

Table S.5 Extraction time single factor experiment results

Time (h)	Polyphenols (mg/g)	Flavonoids (mg/g)	Saponin (mg/g)	Polysaccharides (mg/g)
0.5	3.99 E-03	0.177	0.055	42.871
1	3.80 E-03	0.173	0.056	30.548

2	4.40 E-03	0.201	0.064	42.349
3	4.59 E-03	0.208	0.060	48.031
4	4.78 E-03	0.213	0.063	47.346
5	5.35 E-03	0.234	0.067	26.108

Table S.6 Orthogonal test results of extraction of polyphenols, flavonoids, saponins and polysaccharides from muskmelon pedicel

number	A	B	C	D	Polyphenols (mg/g)	Flavonoids (mg/g)	Saponin (mg/g)	Polysaccharides (mg/g)	Comprehensive score
1	1	1	1	1	4.73 E-03	0.226	0.044	39.915	192.548
2	1	2	2	2	6.07 E-03	0.249	0.044	36.670	223.619
3	1	3	3	3	5.42 E-03	0.237	0.066	35.763	221.699
4	2	1	2	3	6.72 E-03	0.287	0.071	49.398	266.832
5	2	2	3	1	4.83 E-03	0.201	0.089	56.686	217.350
6	2	3	1	2	4.47 E-03	0.197	0.041	44.570	177.597
7	3	1	3	2	4.37 E-03	0.220	0.067	69.791	204.297
8	3	2	1	3	5.39 E-03	0.243	0.084	94.279	244.581
9	3	3	2	1	5.79 E-03	0.244	0.057	85.883	233.892

Table S.7 Intuitive analysis of orthogonal test results of extraction of medicinal components from muskmelon

	Polyphenols (mg/g)				Flavonoids (mg/g)			
	A	B	C	D	A	B	C	D
k1	5.40E-03	5.30E-03	4.90E-03	5.10E-03	0.237	0.244	0.222	0.224
k2	5.30E-03	5.40E-03	6.20E-03	5.00E-03	0.228	0.231	0.260	0.222
k3	5.20E-03	5.20E-03	4.90E-03	5.80E-03	0.235	0.226	0.219	0.255
R	2.20E-04	2.00E-04	1.30E-03	8.70E-04	0.009	0.018	0.041	0.034

Continued

Saponin (mg/g)				Polysaccharides (mg/g)				Comprehensive score			
A	B	C	D	A	B	C	D	A	B	C	D
0.051	0.061	0.056	0.063	37.450	53.034	59.588	60.828	212.622	221.226	204.909	214.597
0.067	0.072	0.057	0.051	50.218	62.545	57.317	50.344	220.593	228.517	241.448	201.838
0.070	0.055	0.074	0.074	83.317	55.406	54.080	59.813	227.590	211.063	214.449	244.371
0.018	0.018	0.018	0.023	45.868	9.511	5.508	10.484	14.968	17.454	36.539	42.533

K1,k2,k3 represents the average yield at a certain level under a certain factor, respectively. R represents range. A, B, C and D represent ethanol concentration, temperature, liquid-solid ratio and time, respectively