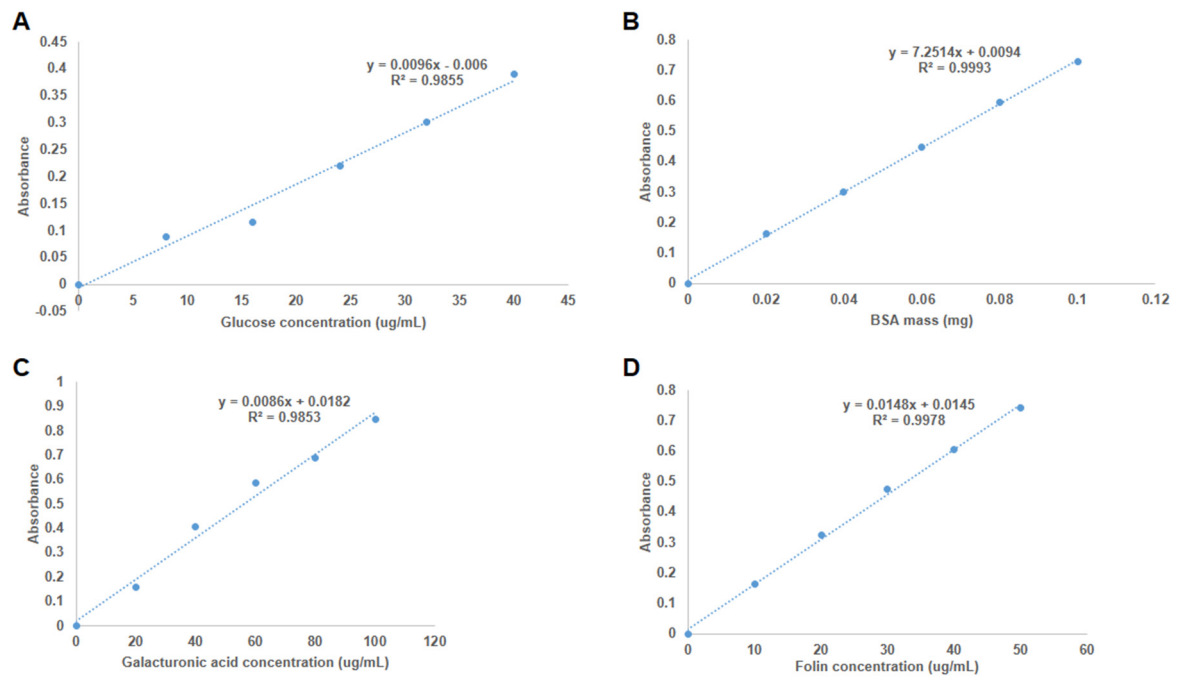


Table S1. CCD design factors and levels of response surface in the extraction process.

Factors	Levels		
	-1	0	1
A. Solid-liquid ratio (g/mL)	1:10	1:15	1:20
B. Extraction time (h)	1.5	2	2.5
C. Extraction temperature (°C)	80	90	100

**Figure S2.** Standard curves of glucose (A), bovine serum albumin (B), galacturonic acid (C) and folin (D).**Table S3.** Three-factor, three-level CCD design for crude polysaccharide extraction method optimization and the investigated response for experimental results.

Run No.	A	B	C	Polysaccharide yield (%)
	X_1	X_2	X_3	
1	-1	0	1	4.0
2	0	-1	1	6.4
3	-1	1	0	1.4

4	0	1	1	5.8
5	1	0	1	5.8
6	0	0	0	5.4
7	1	1	0	4.4
8	0	0	0	6.0
9	0	0	0	6.1
10	0	0	0	6.0
11	0	-1	-1	7.4
12	-1	-1	0	4.8
13	-1	0	-1	3.4
14	0	1	-1	3.2
15	1	0	-1	5.8
16	1	-1	0	4.8
17	0	0	0	6.1

Table S4. ANOVA for response surface quadratic model.

Source	Sun of Squares	df	Mean Square	F value	P value	Significance ^a
Model	31.57	9	3.51	37.10	<0.0001	**
X ₁	6.48	1	6.48	68.52	<0.0001	**
X ₂	9.24	1	9.24	97.76	<0.0001	**
X ₃	0.61	1	0.61	6.40	0.0393	*
X ₁ X ₂	2.25	1	2.25	23.79	0.0018	**
X ₁ X ₃	0.09	1	0.09	0.95	0.3618	
X ₂ X ₃	3.24	1	3.24	34.26	0.0006	**
X ₁ ²	8.02	1	8.02	84.79	<0.0001	**
X ₂ ²	0.78	1	0.78	8.23	0.0240	*
X ₃ ²	0.93	1	0.93	9.83	0.0165	*
Residual	0.66	7	0.95			
Lack of Fit	0.43	3	0.14	2.47	0.2013	

Pure Error	0.23	4	0.058
Cor Total	32.24	16	
R-Squared	0.9795		
Adj R-Squared	0.9531		

^a Significance: * $p < 0.05$, ** $p < 0.01$.

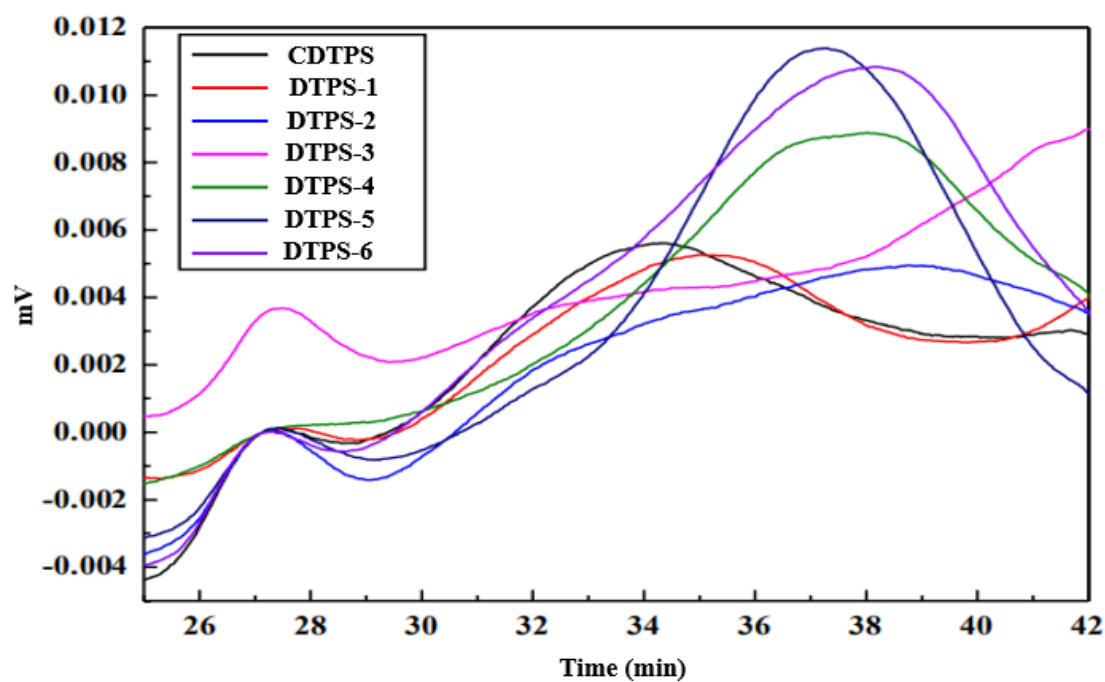


Figure S5. SEC profiles of DTPSs on high performance liquid gel permeation chromatography.

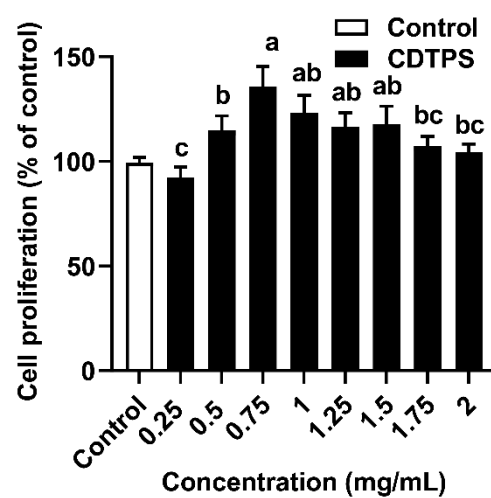


Figure S6. Cell proliferation of different concentrations of CDTPS.