

Supporting information

Table S1. Water retention and solubility of the polysaccharide films

Sample	Ch/Mc (m/m)	W_e (%)		S (%)
		before NaOH	after NaOH	
1	1: 0	7.48 ± 0.45	6.46 ± 0.20	3.0
2	6: 1	6.65 ± 0.23	5.82 ± 0.15	4.4
3	2: 1	5.55 ± 0.30	4.34 ± 0.29	20.9
4	2: 3	3.25 ± 0.16	2.29 ± 0.18	37.6
5	0: 1	1.21 ± 0.13		100

Ch/Mc, chitosan: methylcellulose ratio

Table S2. Sorption kinetic and isotherm parameters of TPPS₄ uptake by the polysaccharide films

Sample	Q_e (g g ⁻¹)	$t_{0.5}$ (min)	p	V_m (mg g ⁻¹ min ⁻¹)	t_m (min)	Q_m (g g ⁻¹)	K	m	n
1	1.80	47.1	3.15	0.033	38.0	1.23	1.25	1.27	0.56
2	1.10	38.1	2.88	0.024	30.9	0.61	2.92	2.80	0.72
3	0.94	36.7	1.59	0.016	14.2	0.49	1.81	3.29	0.74
4	0.79	27.6	1.14	0.023	0.02	0.40	1.33	4.76	0.80

Table S3. TPPS₄ content in the polysaccharide films prepared at different initial concentrations of porphyrin (0.01 and 0.1% m/m)

Sample	TPPS ₄ (mg g ⁻¹)	
	0.01% m/m	0.1% m/m
1/P	155.6 ± 9.5	852.9 ± 34.2
2/P	97.2 ± 19.9	592.4 ± 17.5
3/P	82.3 ± 15.4	460.7 ± 44.4
4/P	57.9 ± 7.3	363.8 ± 12.9
5/P	2.3 ± 0.7*	ND

* prepared using ethanol as the medium

Table S4. The R_a values (nm) for the polysaccharide and polysaccharide – porphyrin films

Sample	R_a (nm)	Sample	R_a (nm)
1	3.5	1/P	9.4
2	71.2	2/P	48.5
3	75.5	3/P	47.4
4	77.7	4/P	24.8