

Supplementary Material

Chitosan–Gelatin Films: Plasticizers/Nanofillers Affect Chain Interactions and Material Properties in Different Ways

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Number of pages: 5

Number of figures: 6

Number of tables: 1

1 Figures

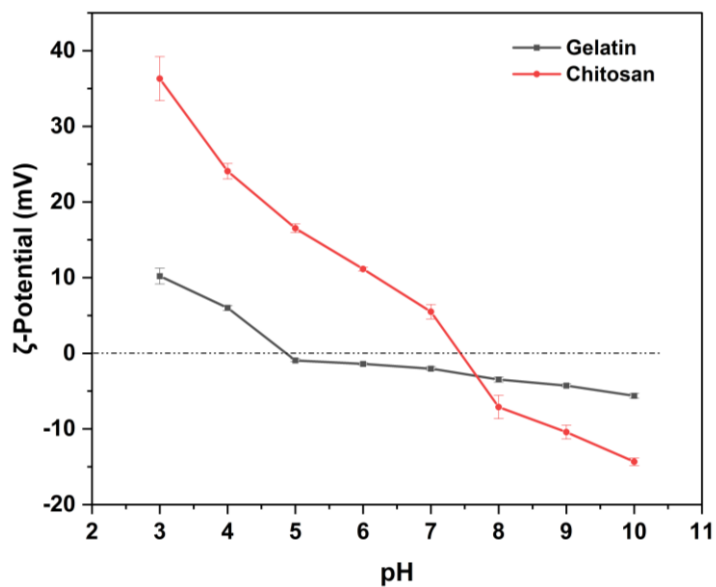


Figure S1. ζ -Potential *vs.* pH curves for chitosan and gelatin.

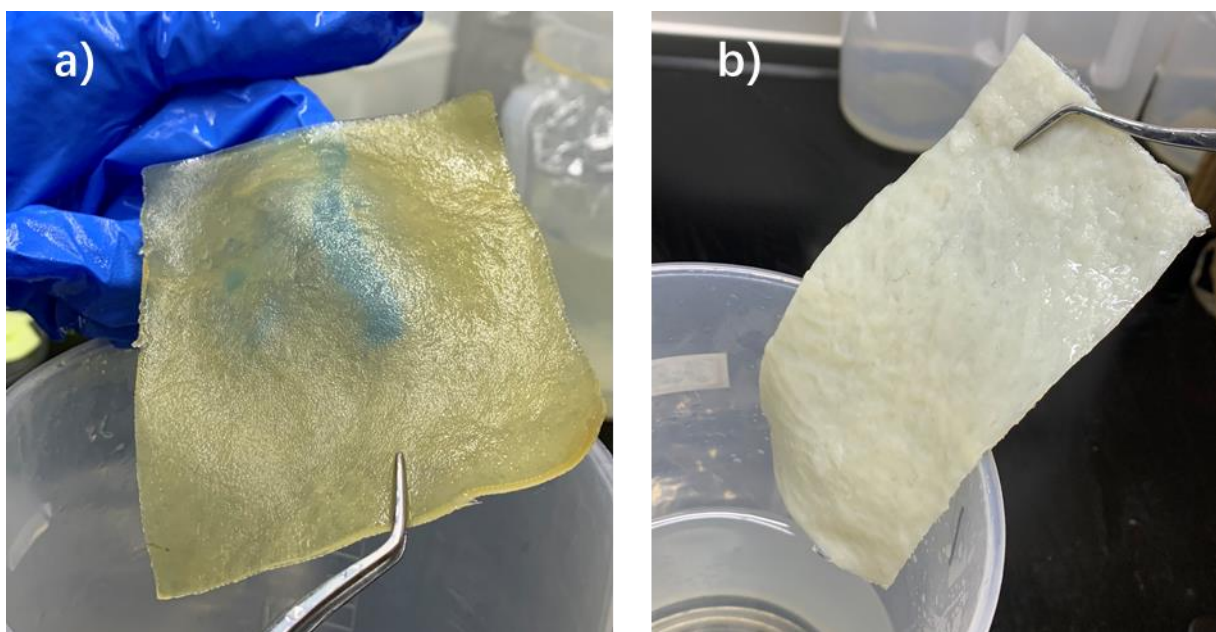


Figure S2. a) G-0 film after being soaked in methanol for 12 h and then in 0.1M NaOH for another 12 h; b)

G-0 film after being soaked only in 0.1M NaOH solution for 12 h.

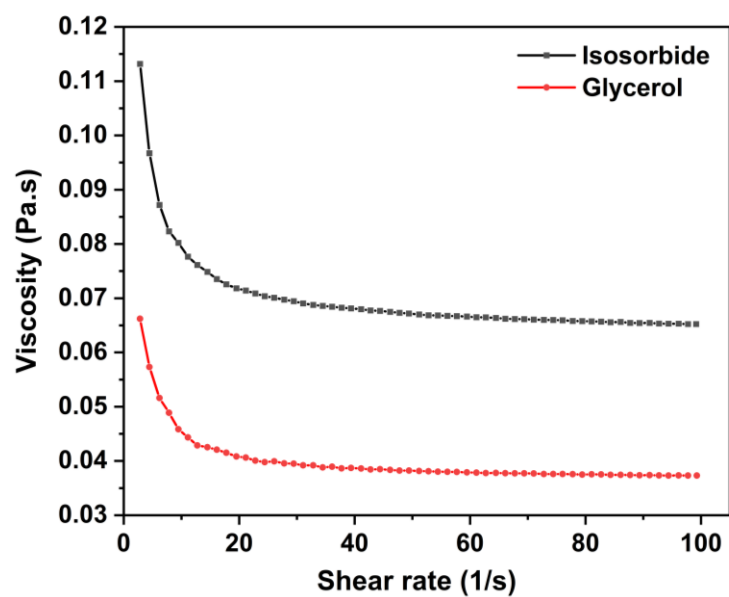


Figure S3. Viscosities of isosorbide and glycerol at 80 °C.

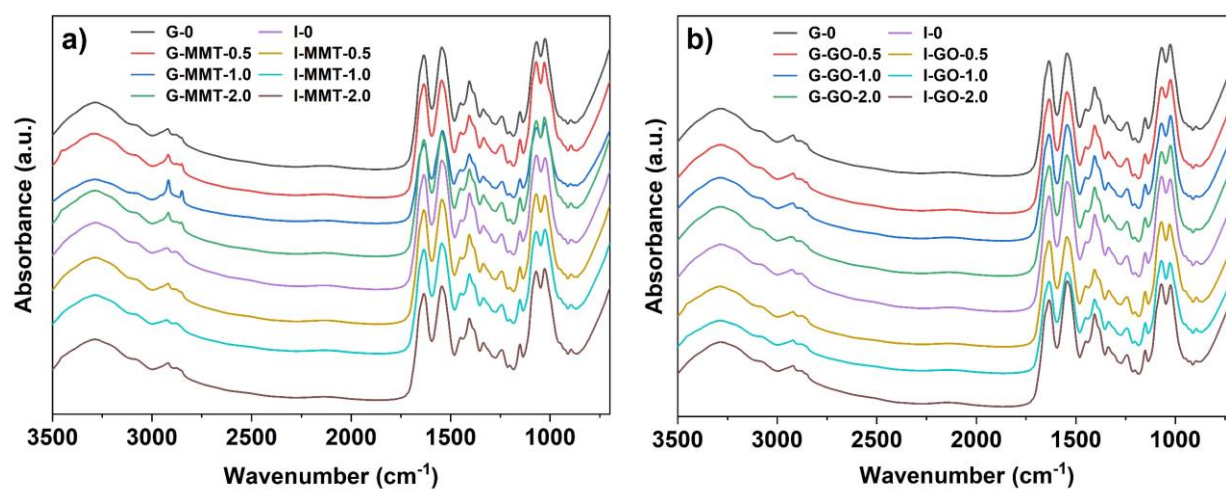


Figure S4. FTIR spectra for the different chitosan-gelatin films.

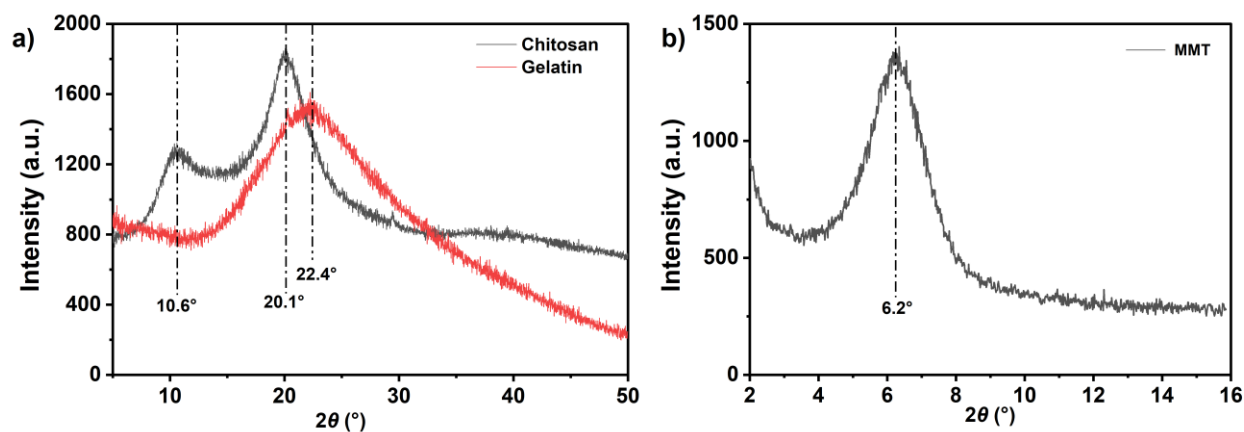


Figure S5. X-ray diffractogram of **a)** raw chitosan, and raw gelatin; **b)** montmorillonite (MMT) (the peak position corresponds to $d_{001} = 1.4$ nm).

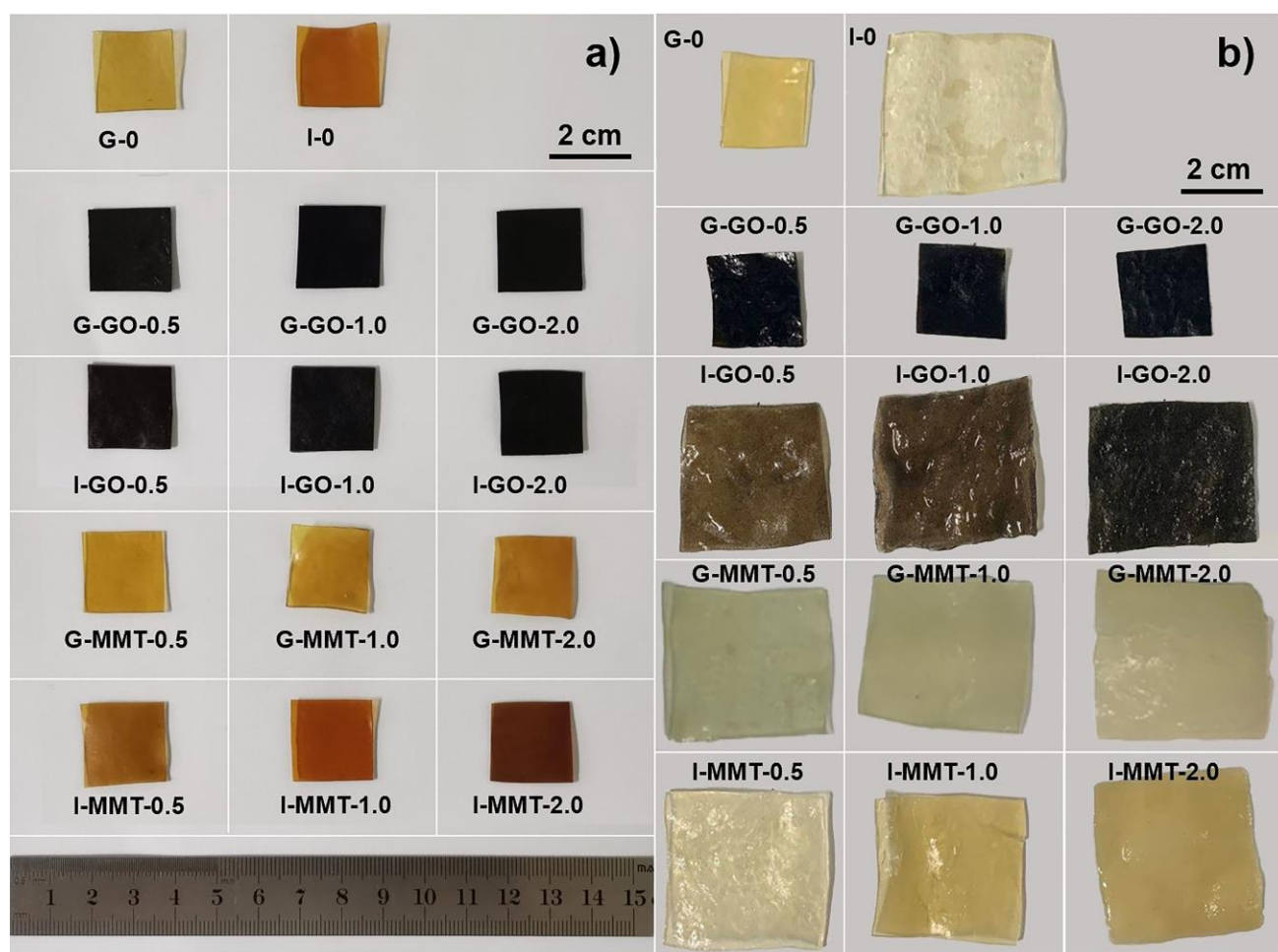
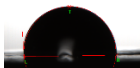

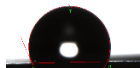

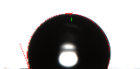
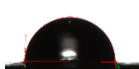
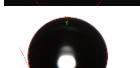

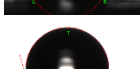
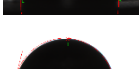
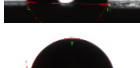
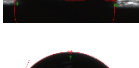
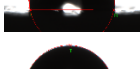
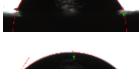
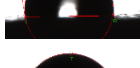
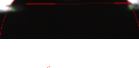
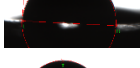
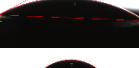
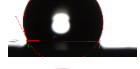
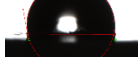
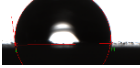

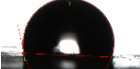
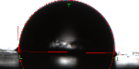
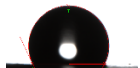




Figure S6. a) Photos of different biopolymer films; b) and the films after soaking in water for 24 h.

Table S1. Contact angle images of the different chitosan-gelatin films.

Films	WCA ($^{\circ}$, t_0)	Image	WCA ($^{\circ}$, t_{60})	Image
G-0	92.2 \pm 3.3		82.1 \pm 2.3	
I-0	112.3 \pm 0.4		88.6 \pm 0.8	
G-MMT-0.5	112.8 \pm 0.5		89.4 \pm 4.9	
G-MMT-1.0	116.3 \pm 0.2		80.6 \pm 2.6	
G-MMT-2.0	108.1 \pm 0.3		76.8 \pm 0.2	
G-GO-0.5	95.3 \pm 0.3		66.3 \pm 0.9	
G-GO-1.0	97.4 \pm 1.2		54.3 \pm 1.5	
G-GO-2.0	89.0 \pm 0.3		29.4 \pm 6.8	
I-MMT-0.5	118.6 \pm 1.5		96.0 \pm 5.2	
I-MMT-1.0	99.3 \pm 2.5		82.1 \pm 8.4	
I-MMT-2.0	108.0 \pm 6.0		95.2 \pm 2.6	
I-GO-0.5	115.0 \pm 0.5		88.6 \pm 0.6	
I-GO-1.0	117.3 \pm 1.1		92.54 \pm 5.5	
I-GO-2.0	106.1 \pm 4.6		73.3 \pm 5.4	