

# AuNP/Chitosan Nanocomposites Synthesized through Plasma Induced Liquid Chemistry and Their Applications in Photothermal Induced Bacteria Eradication

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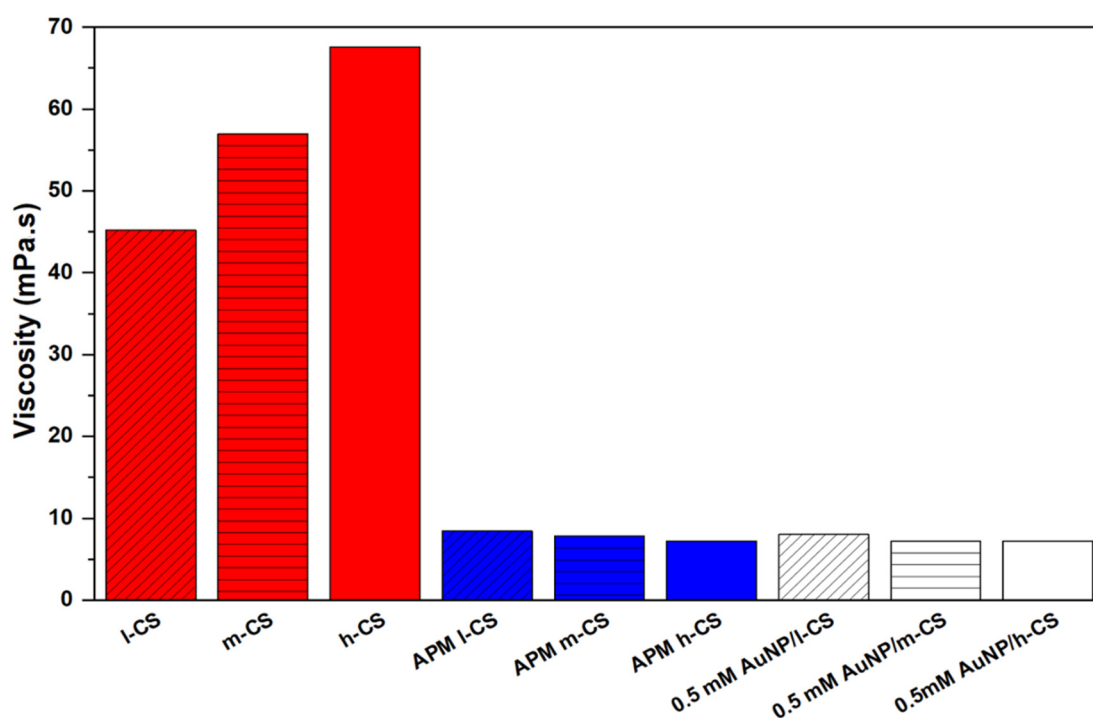
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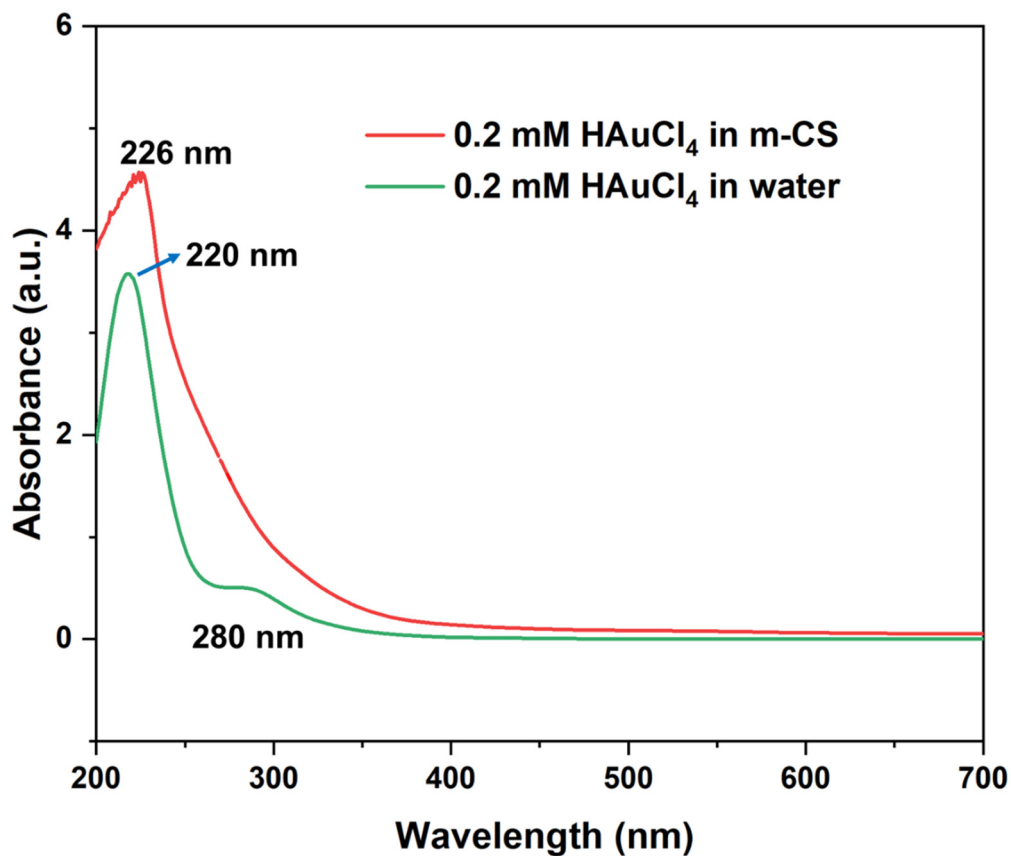
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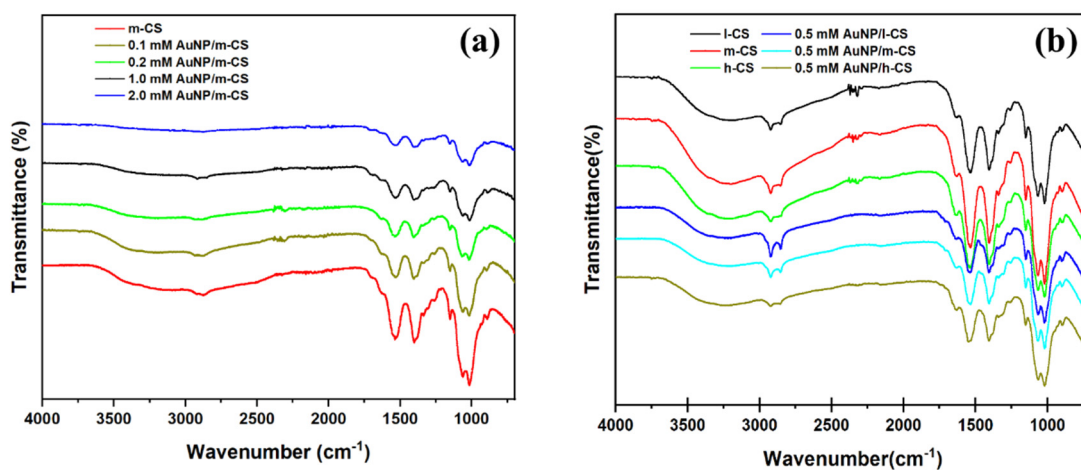
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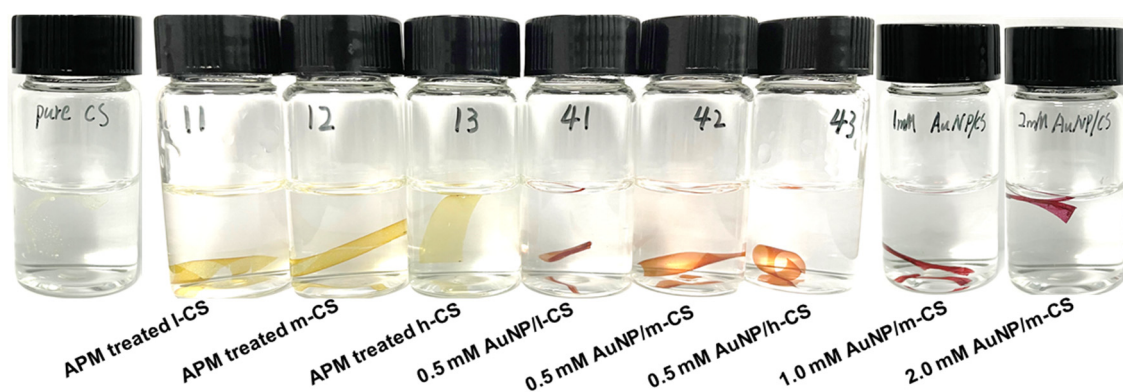
**Figure S1.** The viscosities of samples under investigation.



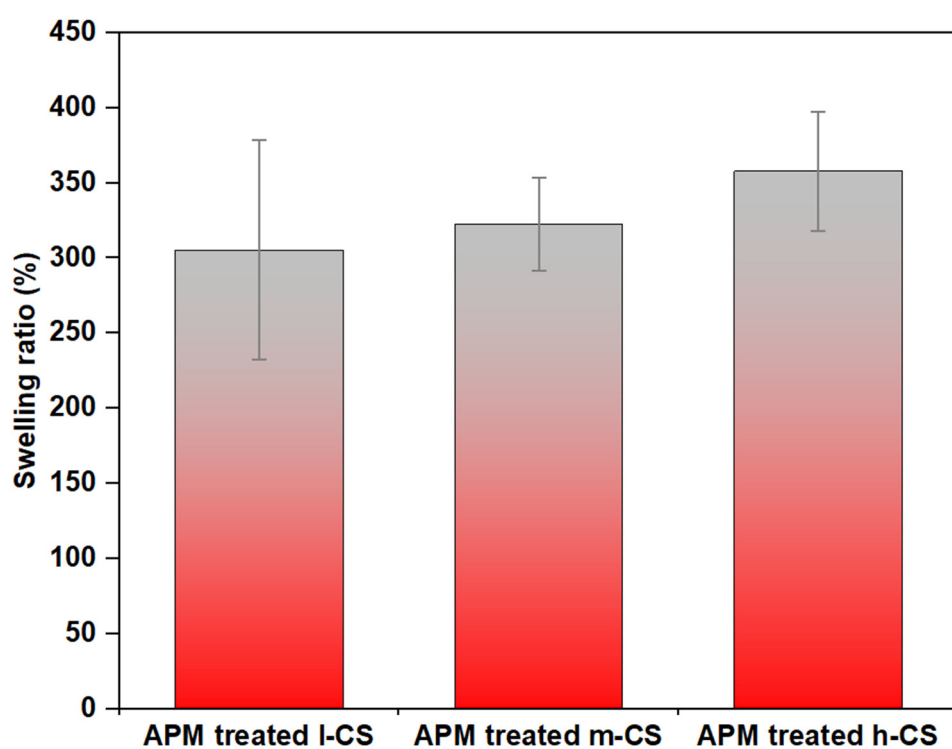
**Figure S2.** UV-vis spectra of 0.2 mM HAuCl<sub>4</sub>/m-CS mixture and untreated 0.2 mM HAuCl<sub>4</sub> in water.



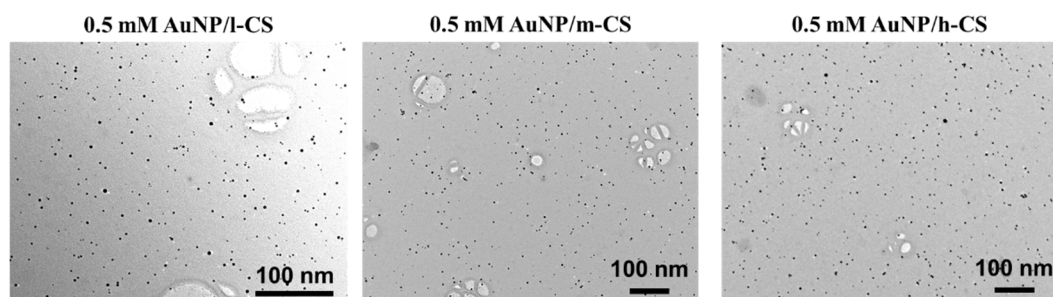
**Figure S3.** FTIR spectra of (a) untreated m-CS and APM-treated 0.1 mM AuNP/m-CS, 0.2 mM AuNP/m-CS, 1.0 mM AuNP/m-CS, and 2.0 mM AuNP/m-CS groups. (b) FTIR spectra of untreated (l, m, h)-CS and APM-treated 0.5 mM AuNP/(l, m, h)-CS groups.



**Figure S4.** Image of sample films after immersed in PBS for 24 h at 37 °C.



**Figure S5.** Swelling ratio of AMP-treated l-CS, m-CS and h-CS.



**Figure S6.** Typical low magnification TEM images of 0.5 mM AuNP/l-CS, 0.5 mM AuNP/m-CS, and 0.5 mM AuNP/h-CS nanocomposites.

**Table S1.** Au 4f peak information for 0.5 mM AuNP/l-CS, 0.5 mM AuNP/m-CS, and 0.5 mM AuNP/h-CS nanocomposites.

sample		Au species		
		Au <sup>0</sup> 4f <sub>5/2</sub>	Au <sup>0</sup> 4f <sub>7/2</sub>	Au <sup>3+</sup>
0.5 mM AuNP/l-CS	BE (eV)	87.80	84.07	-
	Fraction (%)	57.20	42.80	-
0.5 mM AuNP/m-CS	BE (eV)	87.90	84.19	-
	Fraction (%)	44.56	55.54	-
0.5 mM AuNP/h-CS	BE (eV)	88.82	84.56	-
	Fraction (%)	44.09	55.91	-