

Isolation and Characterization of Cellulose-Based Nanofibers for Nanoparticle Extraction from Aqueous Environment

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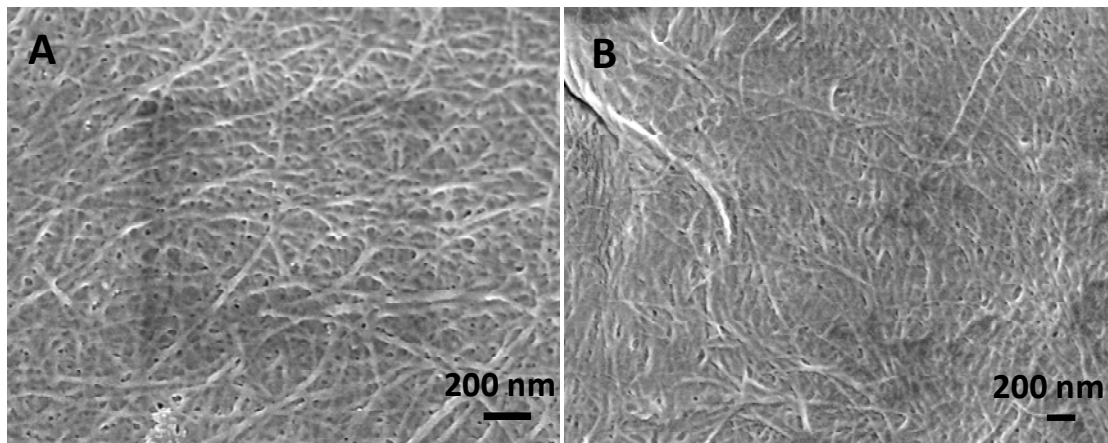
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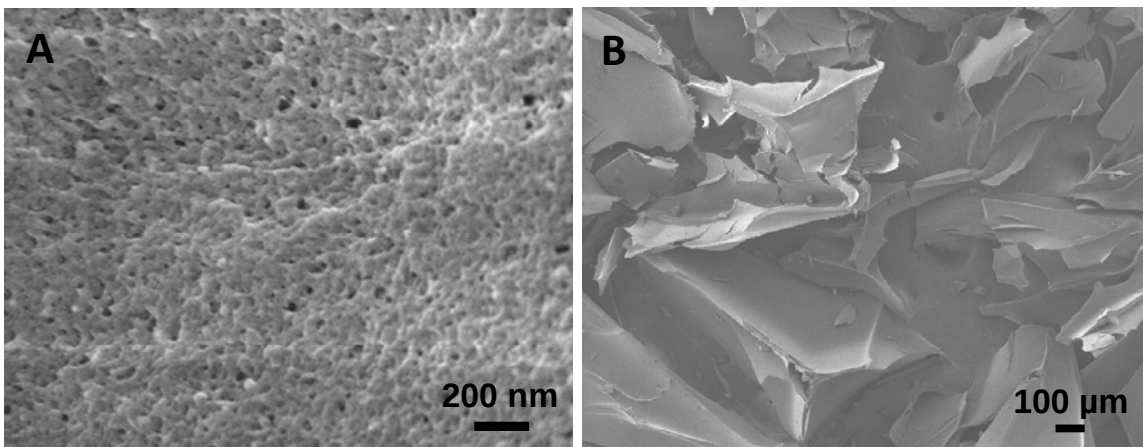
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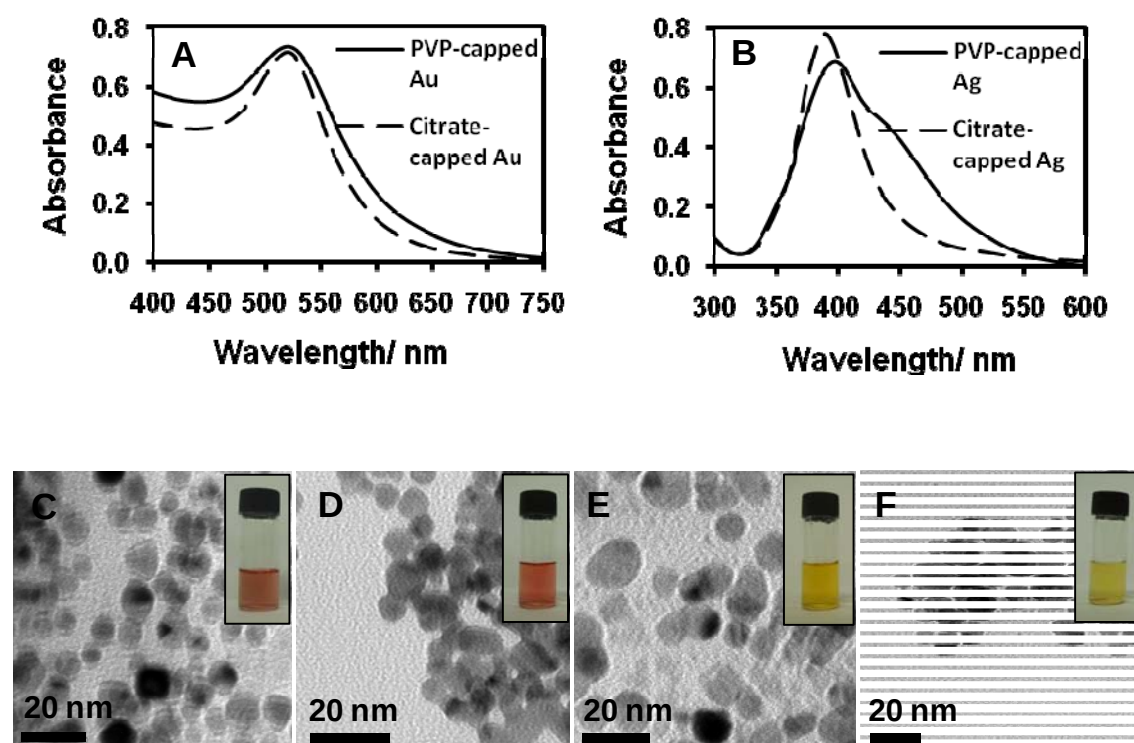
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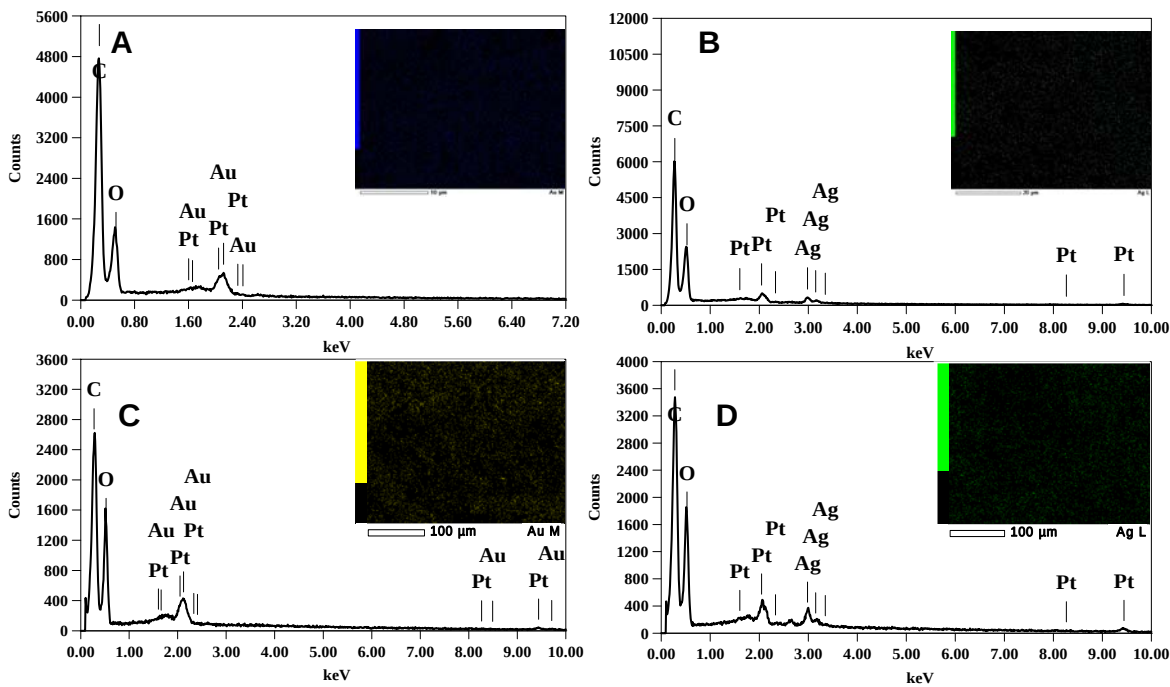
SI-2. SEM images of chitosan coated cellulose nanofiber (A) and crosslinked chitosan (B).



SI-3: UV-visible spectra of PVP and citrate capped Au (A) and Ag- nanoparticles (B); TEM images of PVP capped Au-nanoparticles (C), citrate capped Au- nanoparticles (D), PVP capped Ag-nanoparticles (E), and citrate capped Ag- nanoparticles (F). Inserts show the corresponding camera images of nanoparticle solutions.



SI-4. EDX spectra of chitosan-coated sugarcane nanofibers after adsorption of PVP capped Au-nanoparticles (A), PVP capped Ag-nanoparticles (B), citrate capped Au-nanoparticles (C) and, citrate capped Ag-nanoparticles (D). Inserts showed the corresponding elemental mappings of the nanoparticles.



SI-5. Table for elemental analysis of concentration of Au in hydrochloric acid (A), and silver in nitric acid (B) after desorption and corresponding desorption efficiency

(A)	Nanoparticles	Concentration of Au in Acid/	Desorption Efficiency/ %
		ppm	
	PVP capped Au	0.21	3
	Citrate capped Au	<0.10	<1
(B)	Nanoparticles	Concentration of Ag in Acid/	Desorption Efficiency/ %
		ppm	
	PVP capped Ag	0.30	7
	Citrate capped Ag	0.54	13

SI-6. Summary of filtration of different nanoparticles solution after passing through a column filled with chitosan coated nanofiber.

	PVP capped Au nanoparticle	PVP capped Ag nanoparticle	Citrate capped Au nanoparticle	Citrate capped Ag nanoparticle
Time/min	Efficiency/ %	Efficiency/ %	Efficiency/ %	Efficiency/ %
45 (first 10 ml)	98.15	99.50	97.09	99.55
Next 10 ml	86.62	94.64	84.44	92.45