Facile fabrication of highly efficient chitosan-based multifunctional coating for cotton fabrics with excellent flame retardant and antibacterial properties

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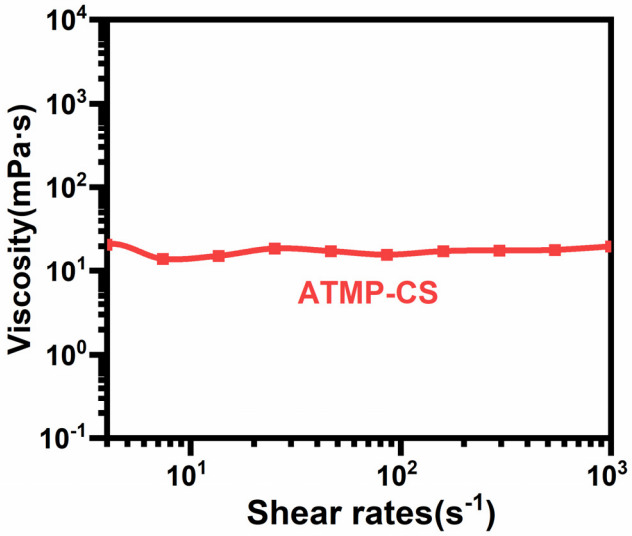

Figure S1. Viscosity curve of ATMP solution with shear rate

Table S1. TGA and DTG dates of cotton and ATMP-CS@Cx fabrics in nitrogen atmosphere.

Samples	Nitrogen			
	$T_{5\%}$(°C)	$T_{d\ max}$(°C)	$R_{d\ max}$(%/°C)	Residues(700°C, wt.%)
Cotton	327.4	357.4	1.43	6.8
ATMP-CS@C5.5	256.6	299.0	0.74	30.2
ATMP-CS@C8.5	254.2	294.9	0.68	34.0
ATMP-CS@C11.5	249.7	290.1	0.65	34.1

Table S2. TGA and DTG dates of cotton and ATMP-CS@Cx fabrics in air atmosphere.

Samples	Air					
	$T_{5\%}$ (°C)	$T_{d1\ max}$ (°C)	$R_{d1\ max}$ (%/°C)	$T_{d2\ max}$ (°C)	$R_{d2\ max}$ (%/°C)	Residue (700°C, wt.%)
Cotton	309.9	338.2	1.37	454.7	0.15	1.3
ATMP-CS@C5.5	255.9	298.3	0.77	505.1	0.21	4.4
ATMP-CS@C8.5	257.1	293.7	0.72	508.8	0.21	5.7
ATMP-CS@C11.5	247.5	285.7	0.64	510.0	0.21	8.5

Table S3. The properties data of the fabric itself

Samples	Breaking force(N)		Elongation at break(%)		Air permeability ($L/m^2 \cdot s$)	Whiteness (%)
	Warp	Weft	Warp	Weft		
Cotton	650	241	15.1	12.7	303	76.7
ATMP-CS@C5.5	543	243	12.0	10.2	352	79.2
ATMP-CS@C8.5	498	254	11.7	8.5	309	78.4
ATMP-CS@C11.5	479	241	7.7	8.1	302	78.3