

Article

Nano-Metal Organic Framework for Enhanced Mechanical, Flame Retardant and Ultraviolet-Blue Light Shielding Properties of Transparent Cellulose-Based Bioplastics

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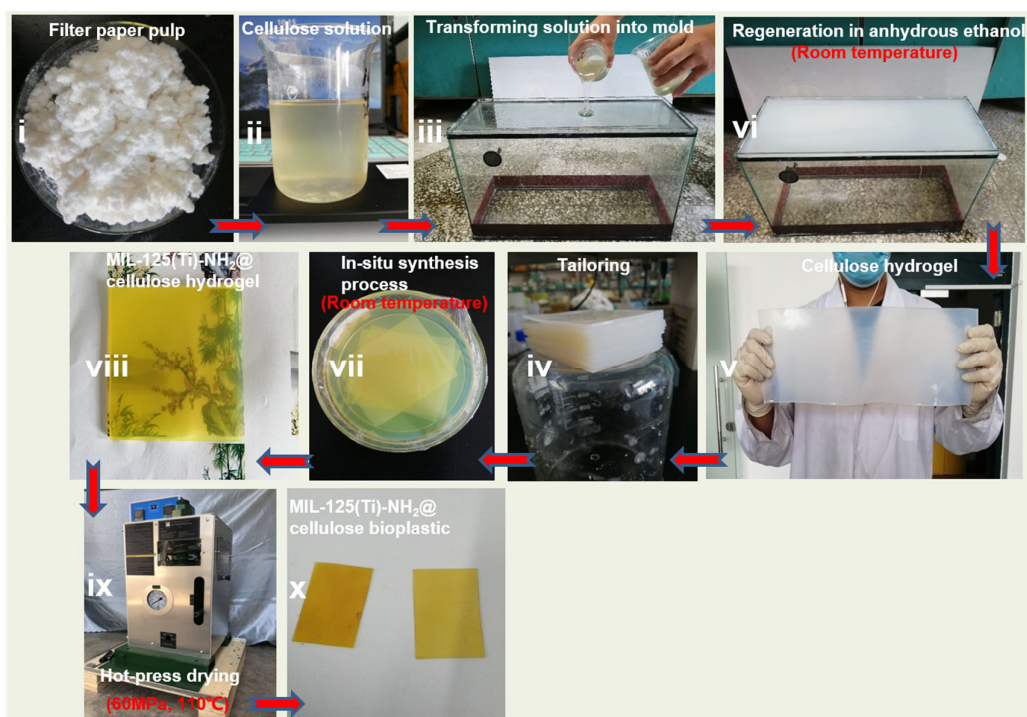


Figure S1. Fabrication of MIL-125(Ti)-NH₂@cellulose bioplastic (MNP@CBP) from filter paper pulp.

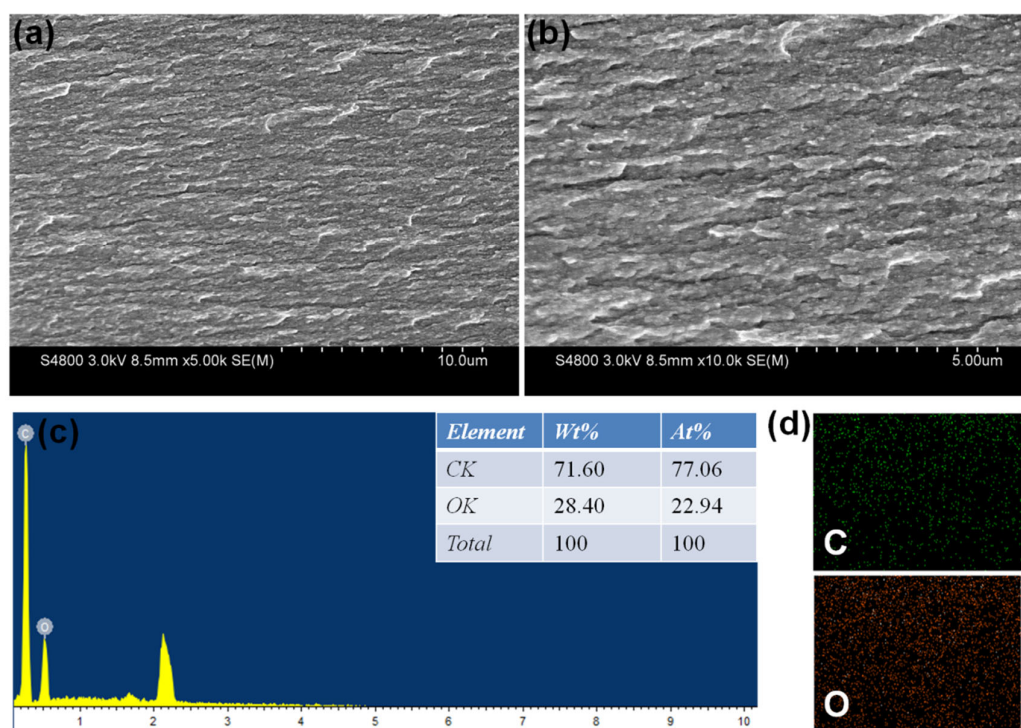


Figure S2. (a, b) Cross-sectional SEM images of CBP; (c) EDS spectrum of CBP; (d) Elemental mapping images of CBP for carbon and oxygen.

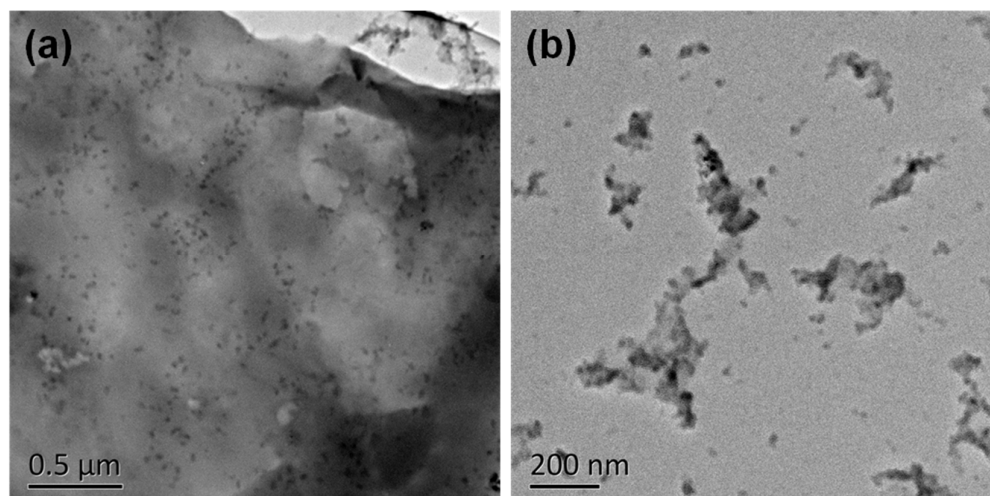


Figure S3. TEM images of MNP@CBP5.

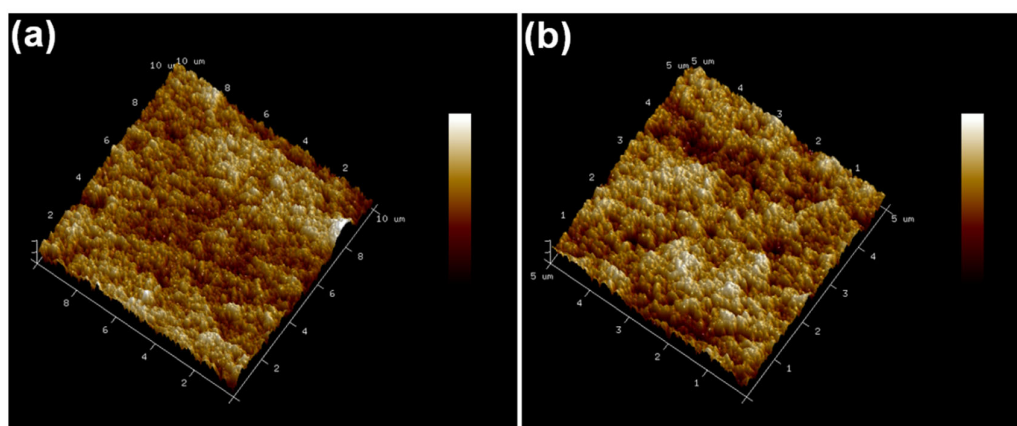


Figure S4. AFM images of pure CBP (a) and MNP@CBP5 (b).

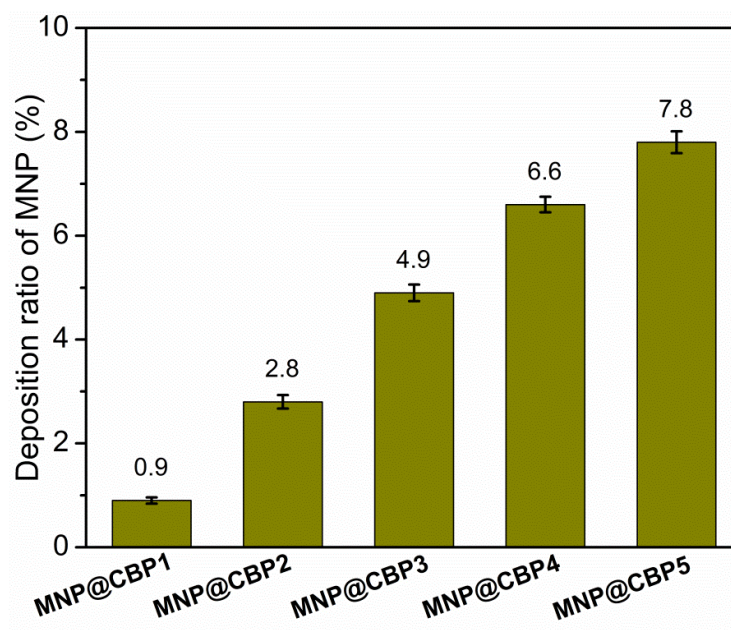


Figure S5. Deposition ratio of MNP into MNP@CBPs.

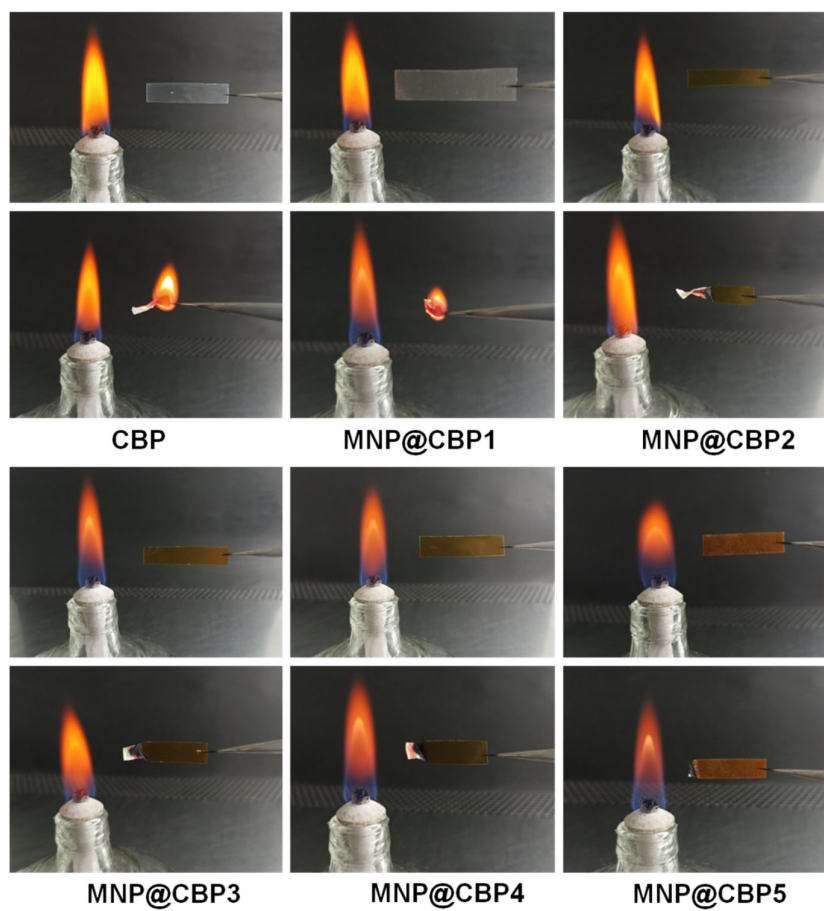


Figure S6. Photos of the samples before and after burning.

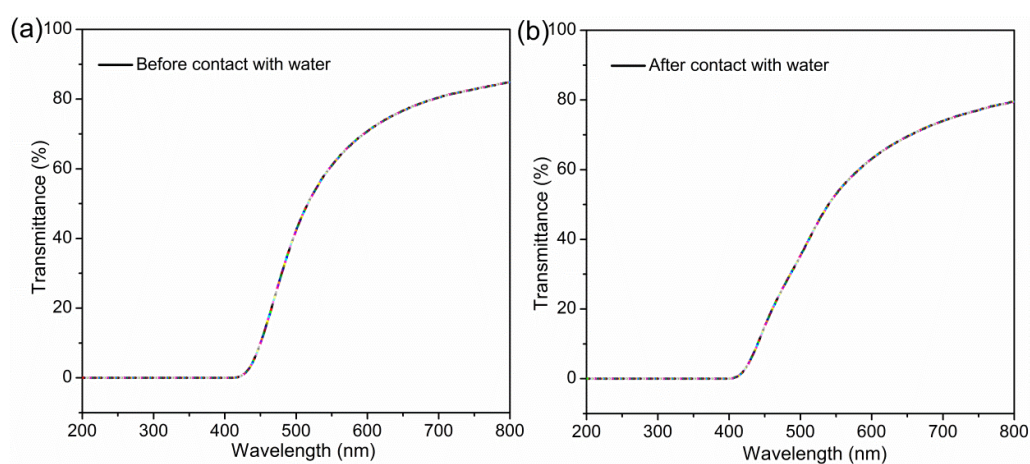


Figure S7. UV transmittance curves of MNP@CBP3 after 12 hours of contact with water.

Table S1. Reagents dosage, reaction time and temperature used for sample preparation.

Sample	TiOiPr (mmol)	NH ₂ -BDC (mmol)	Time (h)	Temperature (°C)
MNP@CBP1	0.335	0.55	48	25
MNP@CBP2	0.67	1.1	48	25
MNP@CBP3	1.34	2.2	48	25
MNP@CBP4	2.01	3.3	48	25
MNP@CBP5	2.68	4.4	48	25