Electronic supplementary information for

Development of Leaf-adhesive Pesticide Nanocapsules with pH-responsive Release to Enhance Retention Time on Crop Leaves and Improve Utilization Efficiency

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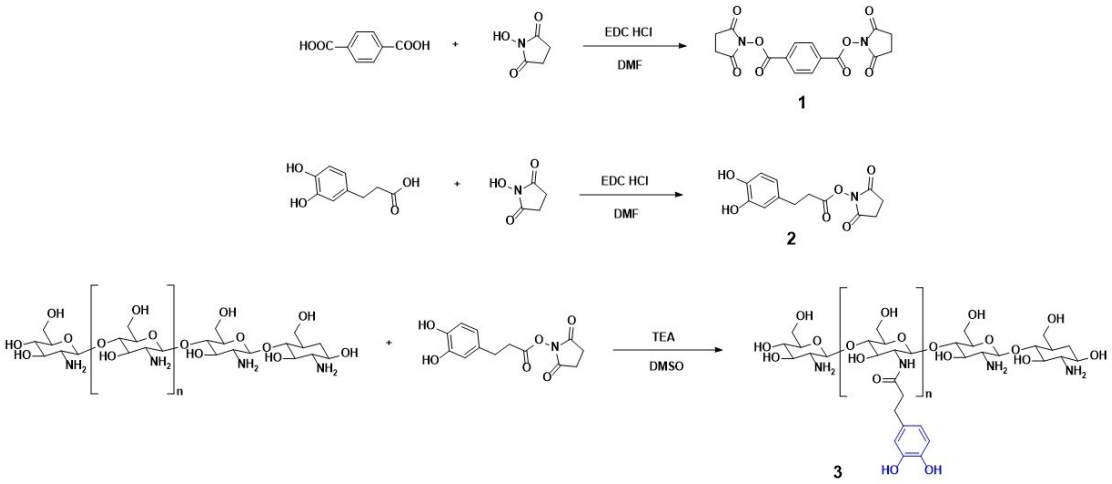
1, Supplementary scheme



Scheme S1. The synthetic route for compounds **1**, **2**, and **3**.

2, Supplementary figures.

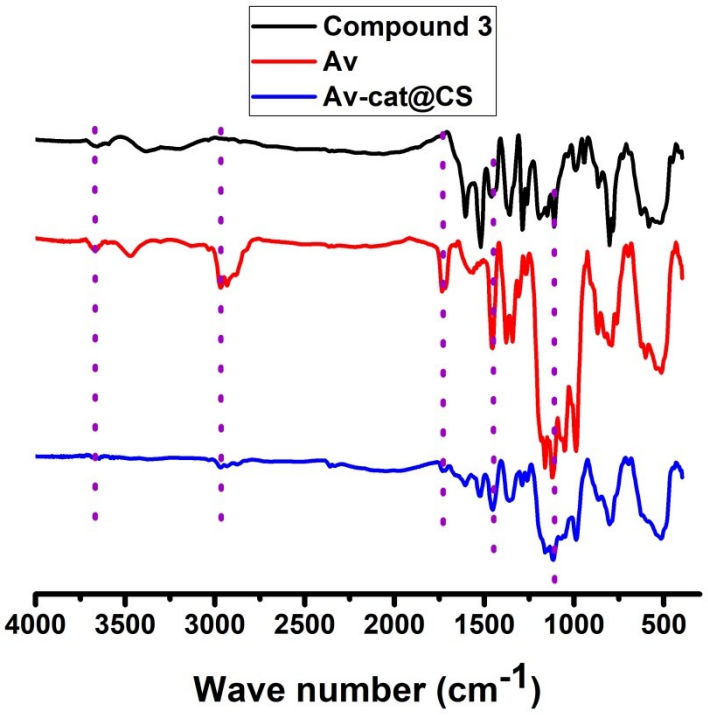


Fig. S1. FT-IR spectra of compound **3**, Av, and Av-cat@CS.

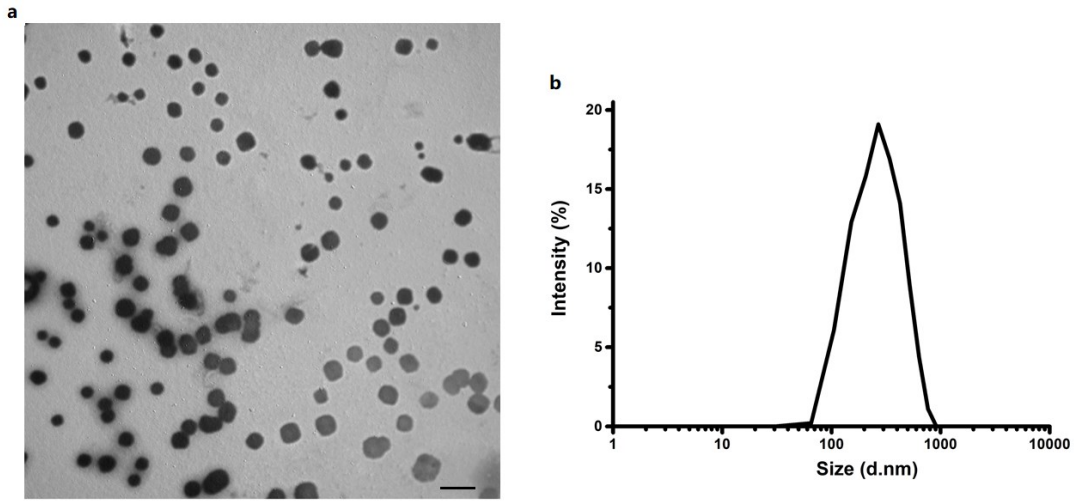


Fig. S2. TEM image (a) and hydrodynamic size distributions (b) of Av-cat@CS. The scale bar in the SEM image is 500 nm.

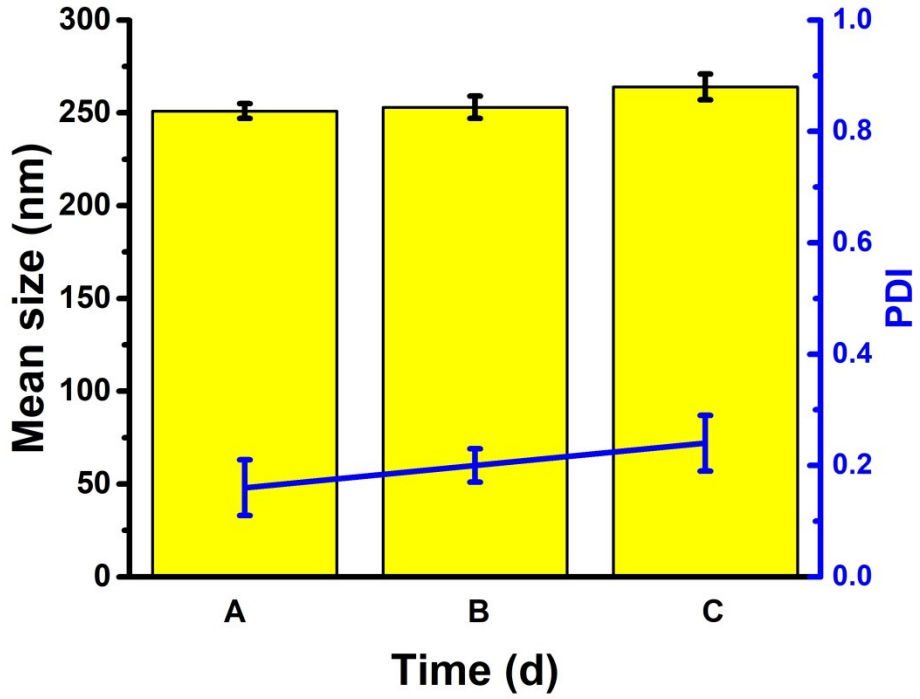


Fig. S3. Time-dependent changes of the hydrodynamic mean size and PDI of the Av-pH-cat@CS at 25 °C. Column A, B and C referred to 0, 14 and 180 days storage.

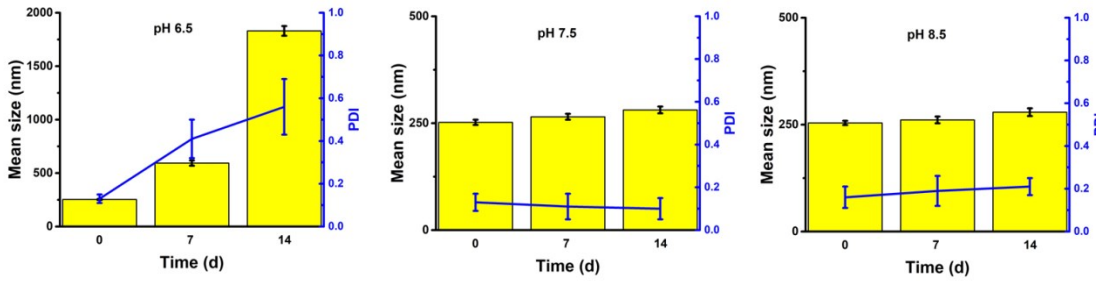


Fig. S4. Time-dependent changes of the hydrodynamic mean size and PDI of the Av-pH-cat@CS at different pH at room temperature.

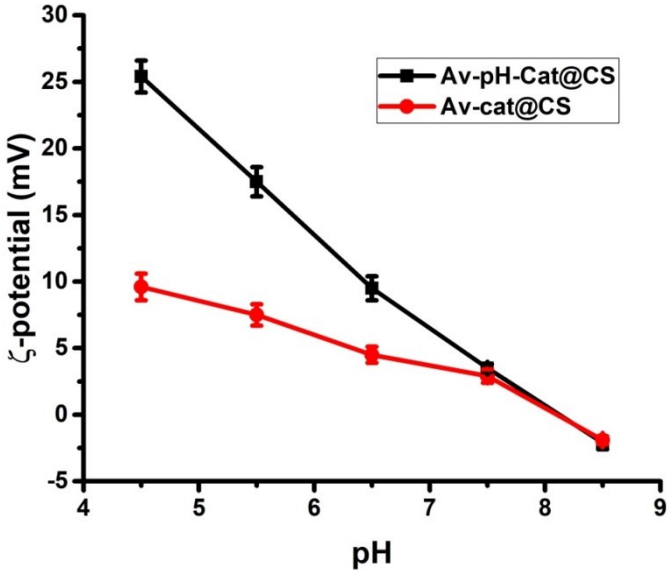


Fig. S5. The ζ-potential changes of Av-pH-cat@CS and Av-cat@CS under various pH conditions.

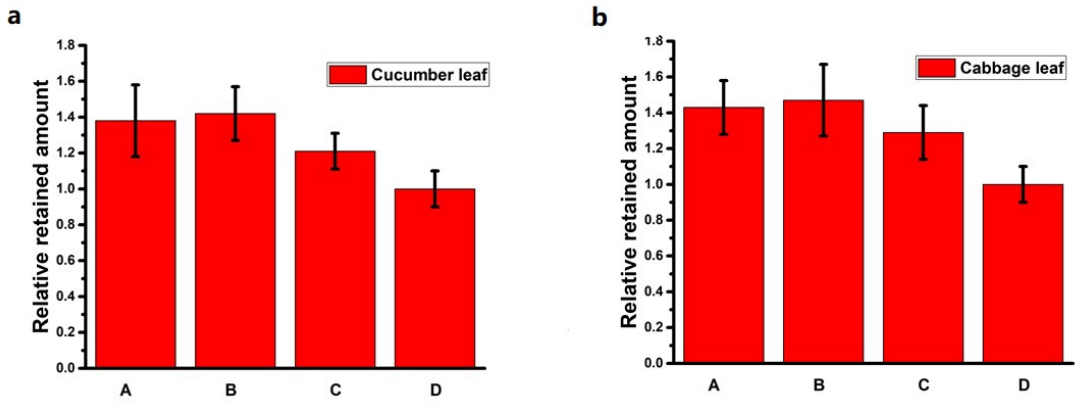


Fig. S6. The relative retained amount of Av-pH-cat@CS, Av-cat@CS, EC and WDG on cucumber (a) and cabbage leaf (b) based on the leaf dipping method. The retained amount of WDG on crop leaves was set to be 1.0. Columns A to D refer to Av-pH-cat@CS, Av-cat@CS, EC, and WDG, respectivel

3, Supplementary table

Table S1. The contact angles (CA) on cucumber and broccoli foliage surface.

Samples	CA on cucumber (°)	CA on broccoli (°)
H_2O	79.4±5.9°	131.2±7.7
Av-pH-cat@CS	61.5±6.4	111.1±2.9
Av-pH @CS	67.2±4.3	124.7±4.2
Av-cat@CS	63.5±4.1	109.2±7.1
Av-cat@CS	68.4±3.2	122.4±4.8