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Supporting Information

Fabrication of ROS-responsive Mesoporous Silica Nanoparticles with interior pore-wall modification for smart azoxystrobin delivery

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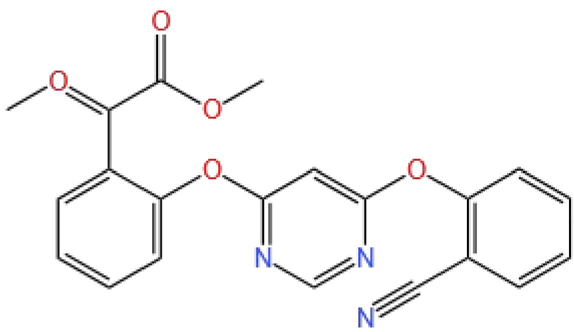

Figure S1: Chemical structures of azoxystrobin (AZOX)

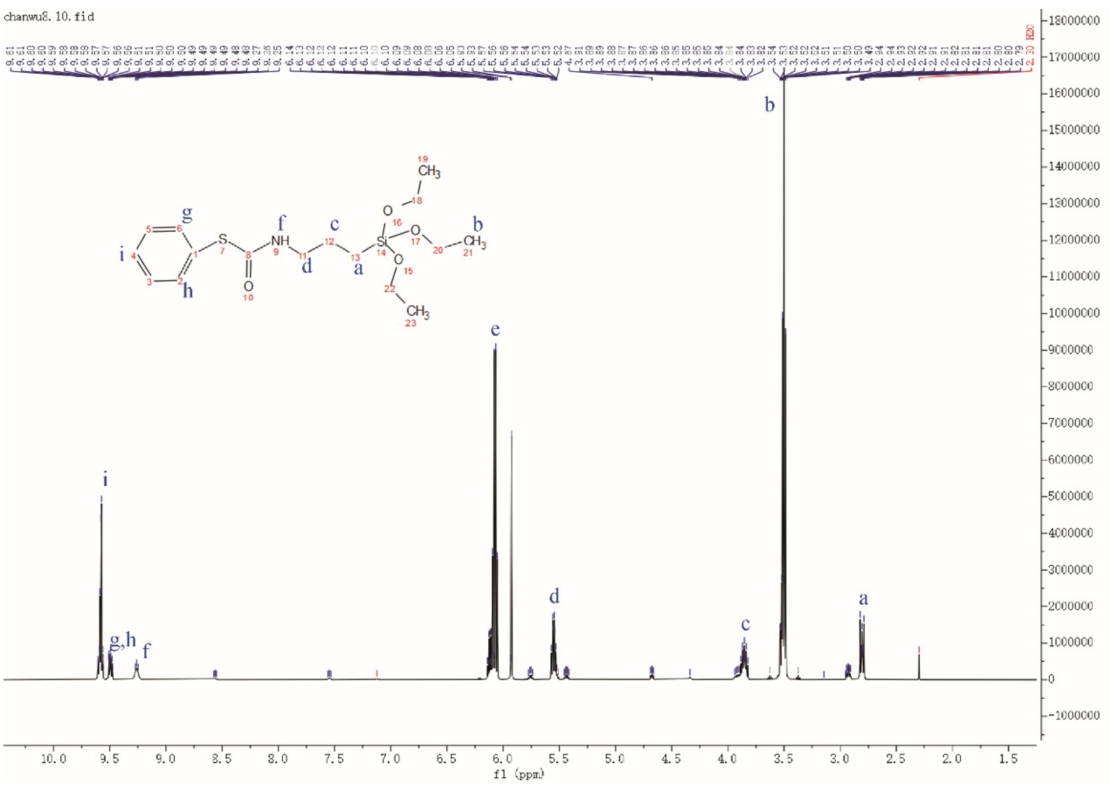

Figure S2. Liquid ^{1}H NHR spectrum (400 MHz, $CDCl_3$) of PHS-APTES.

Table S1. Mesoporous Structure Characterization of MSN-PHS and MSN-PHS-AZOX.

Sample	SBET (m^2/g)	Pore volume (cm^3/g)	Pore size (nm)
MSN-PHS	979.566	0.691	3.404
MSN-PHS-AZOX	725.36	0.418	3.063

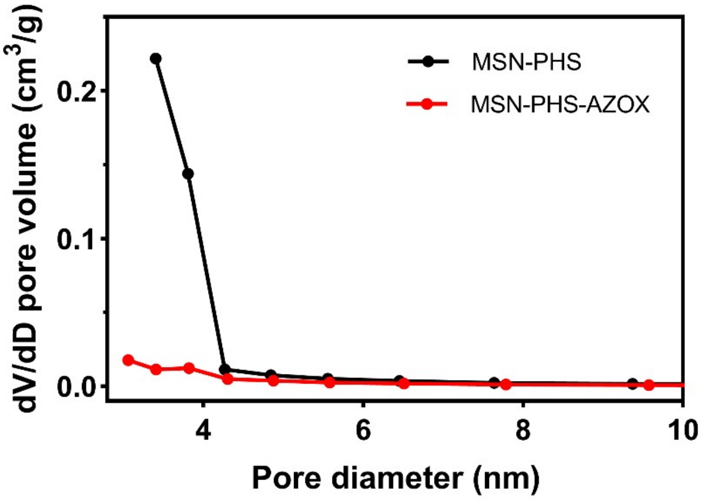

Figure S3. Pore size distribution of MSN-PHS and MSN-PHS-AZOX.

Table S2. Different fitted kinetic equations of MSN-PHS-AZOX in aqueous 30% methanol solution of 0, 50, 200, 500 μM H_2O_2.

Concentration	First-order		Peppas		Higuchi	
(μM)	Kinetic equation	R^2	Kinetic equation	R^2	Kinetic equation	R^2
0	$y = 14.64\ e^{(0.28x)} + 1.79$	0.99	$y = 11.27\ x^{0.35}$	0.99	$y = 4.85\ x^{1/2} + 8.10$	0.96
50	$y = 16.02\ e^{(0.44x)} + 4.85$	0.99	$y = 14.06\ x^{0.34}$	0.98	$y = 5.76\ x^{1/2} + 10.30$	0.95
200	$y = 24.70\ e^{(0.18x)} + 8.40$	0.99	$y = 14.42\ x^{0.37}$	0.98	$y = 7.31\ x^{1/2} + 8.97$	0.95
500	$y = 23.28\ e^{(0.44x)} + 2.00$	0.98	$y = 17.36\ x^{0.36}$	0.94	$y = 8.26\ x^{1/2} + 10.53$	0.90

Table S3. Virulence regression equation of AZOX TC, AZOX SC, MSN-PHS-AZOX on mycelial growth of *B. cinerea* with and without H_2O_2 in the medium.

Treatment	Fitted equation	EC50 (μg/mL)	R2
AZOX TC	y = 0.7440x + 6.0478	0.0668	0.9117
AZOX SC	y = 0.7163x + 5.9824	0.0726	0.9075
MSN-PHS-AZOX with H2O2	y = 0.6583x + 5.9136	0.0776	0.8888
MSN-PHS-AZOX	y = 0.8402x + 5.4666	0.2801	0.9310

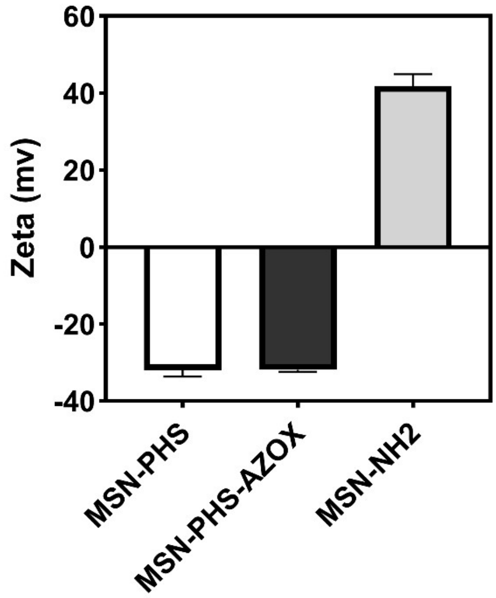

Figure S4. The Zeta potential of MSN-PHS, MSN-PHS-AZOX, and $MSN-NH_2$.

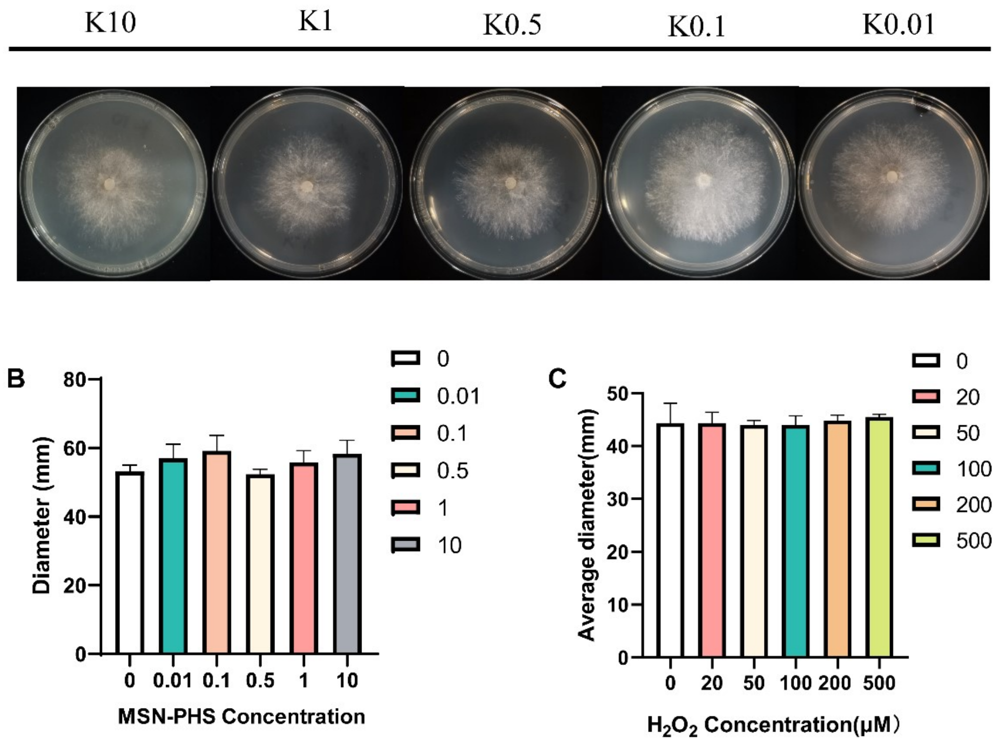

Figure S5. The inhibitory effect of MSN-PHS nanocarriers (a, b) and H_2O_2 (c) on *Botrytis cinerea.*

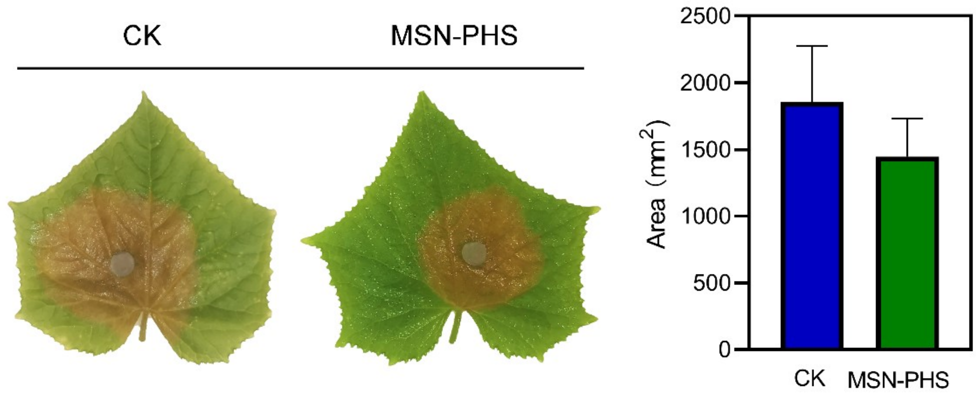

Figure S6. The inhibitory effect of MSN-PHS nanocarriers to *B. cinerea* on the lesion development on cucumber leaves.