

Inhibitory Effect and Mechanism of Chitosan–Ag Complex Hydrogel on Fungal Disease in Grape

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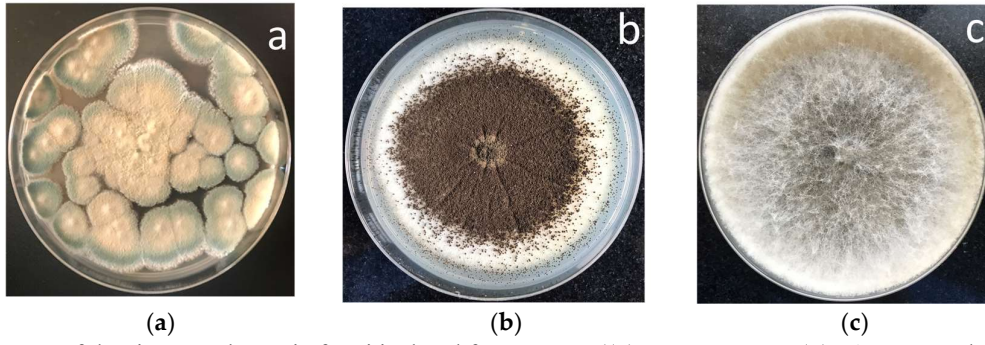


Figure S1. The image of dominant pathogenic fungi isolated from grape. ((a): *P. expansum*, (b): *A. niger* and (c): *B. cinerea*).

a ITS1, Serial number:

TTGCGGTTACCTACCTACTTCTGGTATCCCCACTCCCATGGTGTGACGGGCGGTGTG-
TACAAGACCCGGAACGTATTACCGCAGTATGCTGACCTGCGATTACTAGCGAT-
TCCGACTTCATGCACTCGAGTTGCAGAGTGCAATCCGGACTACGATCGGTTTTGTGA-
GATTGGCTCCGCTCGCGGCTTGGCTACCCTCTGTACCGACCATTGTATGACGTGTGAA-
GCCCTGGTCATAAGGGCCATGAGGACTTGACGTCATCCCCACCTTCCTCCGGCTTGTACCCGG-
CAGTCTCATTAGAGTGCCCAACCGAATGATGGCAACTAATGACAAGGGTTGCGCTCGTTGCGG-
GACTTAACCCAACATCTCACGACACGAGCTGACGACAGCCATGCAGCACCTGTGTAC-
GGCTCCCGAAGGCACTCCTCCGTCTCCGGAGGATTCCGCACATGTCAAAAC-
CAGGTAAGGTTCTTCGCGTTGCATCGAATTAATCCACATCATCCACCGCTT-
GTGCGGGTCCCCGTCAATTTCCTTTGAGTTTAAATCTTGCGACCG-
TACTCCCCAGGCGGTCAATTTACGCGTTAGCTACGCTACCAAGCAATCAAGTT-
GCCCAACAGCTAATTGACATCGTTTAGGGCGTGGACTACCAGGGTATCTAATCCTGTTTGCTACCCACGCTT

a ITS4, Serial number:

TCGGACATGAACGTCAGTGTTATCCCAGGAGGCTGCCTTCGCCATCGG-
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CTCCCTCTGACACACTCGAGTACCCAGTTTACAACGCAGTTCCCGGGTTGAGCCCGGGGAT-
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TCTGGGCCGTGTCTCAGTCCCAGTGTGGCGGATCATCCTCTCAGACCCGC-
TACTGATCGTCGCCTTGGTGGGCCTTTACCCCGCCAACCAGCTAATCAGATATCGGCCGCTCG-
GATAGCGCAAGGCCCCGAAGTCCCCTGCTTTCCCTCTCAAGACGTATGCGG-
TATTAGCTGATCTTTCGATCAGTTATCCCCGCTACCCGGTACGTTCCGA-
TATGTTACTACCCGTTCCGCACTCGCCACCCGAGAAGCAAGCT

	Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
✓	Penicillium fimorum isolate 2011F12 small subunit ribosomal RNA gene, partial sequence: internal transcribed sp...	Penicillium fimorum	1026	1026	100%	0.0	100.00%	588	MT558942.1
✓	Penicillium robsamsoni isolate 2011F1 internal transcribed spacer 1, partial sequence: 5.8S ribosomal RNA gene...	Penicillium robsa...	1026	1026	100%	0.0	100.00%	574	MT558937.1
✓	Penicillium polonicum isolate 2010F27 internal transcribed spacer 1, partial sequence: 5.8S ribosomal RNA gene...	Penicillium polon...	1026	1026	100%	0.0	100.00%	575	MT558934.1
✓	Penicillium italicum isolate 2010F18 internal transcribed spacer 1, partial sequence: 5.8S ribosomal RNA gene an...	Penicillium italicum	1026	1026	100%	0.0	100.00%	564	MT558932.1
✓	Penicillium expansum isolate 2010F13 internal transcribed spacer 1, partial sequence: 5.8S ribosomal RNA gene...	Penicillium expa...	1026	1026	100%	0.0	100.00%	562	MT558929.1

b ITS1, Serial number:

TGGSTTCGCTTCGTAGGTGACCTGCGGAGGATCATTACCGAGTGCGGGTCCTTT-
GGGCCCCAACCTCCCATCCGTGTCTATTATACCTGTTGCTTCGGCGGGCCCGCGCTT-
GTCGGCCGCCGGGGGGGCGCCTTTGCCCGCCGGCGGAGACCCCAACAC-
GAACACTGTCTGAAAGCGTGCAGTCTGAGTTGATTGAATGCAATCAG-
TTAAAACTTTCAACAATGGATCTCTTGGTTCCGGCATCGATGAAGAACGCAGCGAAATGCGA-
TAACTAATGTGAATTGCAGAATTCAGTGAATCATCGAGTCTTTGAACGCACATT-
GCGCCCCCTGGTATTCCGGGGGGCATGCCTGTCCGAGCGTCATTGCTGCCCTCAA-

GCCCCGCTTGTGTGTTGGGTCGCCGTCCCCCTCTCCGGGGGGAC-
 GGGCCCGAAAGGCAGCGGCGGCACCGCTCCGATCCTCGAGCGTATGGGGCTTT-
 GTCACATGCTCTGTAGGATTGGCCGGCGCCTGCCGACGTTTTTCCAACCATTTTTTCCAGGTT-
 GACCTCGGATCAGGTAGGGATACCCGCTGAACTTAAGCATATCAATAAGCCGGAGGAA

b ITS4, Serial number:

AGASTGGATCCTACTGATCCGAGGTCACCTGGAAAAAATGGTTGGAAAACGTCGG-
 CAGGCGCCGGCCAATCCTACAGAGCATGTGACAAAGCCCCATACGCTCGAGGATCGGAC-
 GCGGTGCCCGCCGCTGCCTTTTCGGGCCCCGTCCCCCGGAGAGGGGGAC-
 GGCGACCCAACACACAAGCCGGGCTTGAGGGCAGCAATGACGCTCGGACAGGCATGCCCCCGG-
 GAATACCAGGGGGCGCAATGTGCGTTCAAAGACTCGATGATTCACTGAATTCTG-
 CAATTCACATTAGTTATCGCATTTTCGCTGCGTTCTTCATCGATGCCGGAACCAAGA-
 GATCCATTGTTGAAAGTTTAACTGATTGCATTCAATCAACTCAGACTGCACGCTTTCAGA-
 CAGTGTTCTGTGTTGGGGTCTCCGGCGGGCACGGGCCCCGGGGGG-
 CAAAGGCGCCCCCCCCGGCGGCCGACAAGCGGCGGGCCCCGCCGAAGCAACAGGGTATAATAGA-
 CACGGATGGGAGGTTGGGCCCCAAAGGACCCGCACTCGGTAATGATCCTTCCGCAGGTTTAC-
 CTACGGAAACCTTGTTACGACTTTTACTTCCTCAAGGGRAMCCAAGRA

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Aspergillus tubingensis isolate 132 small subunit ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence	Aspergillus tubingensis	1101	1101	98%	0.0	99.83%	609	KU847852.1
Aspergillus niger isolate 127 internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence	Aspergillus niger	1099	1099	98%	0.0	99.83%	608	KU847850.1

c ITS1, Serial number:

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 TAGACCTCCCACCCTTGTGTATTATTACTTTGTTGCTTTGGCGAGCTGCCTTCGGGCCTT-
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 TAGTTAAAACCTTCAACAACGGATCTCTTGTTTCTGGCATCGATGAAGAAC-
 GCAGCGAAATGCGATAAGTAATGTGAATTGCAGAATTCAGTGAATCATCGAATCTTTGAAC-
 GCACATTGCGCCCCCTTGGTATTCCGGGGGGGCATGCCTGTTTCGAGCGTCATTTCAACCCCTCAA-
 GCTTAGCTTGGTATTGAGTCTATGTCAGTAATGGCAGGCTCTAAAATCAG-
 TGGCGGCGCCGCTGGGTCTGAACGTAGTAA-
 TATCTCTCGTTACAGGTTCTCGGTGTGCTTCTGCCAAAACCCAAATTTTTCTATGGTTGAC-
 CTCGGATCAGGTAGGGATACCCGCTGAACTTAAGCATATCAAARCSCGGAGGAAA

c ITS4, Serial number:

TRTGAGCTACCTGATCCGAAGGTCACCATTAGAAAAATTTGGGTTTTGGCAGAAGCACAC-
 CGAGAACCTGTAACGAGAGATATTACTACGTTTCAGGACCCAGCGGCGCCGCCACTGATTTTA-
 GAGCCTGCCATTACTGACATAGACTCAATACCAAGCTAAGCTTGAGGGTTGAAATGAC-
 GCTCGAACAGGCATGCCCCCGGAATACCAAGGGGCGCAATGTGCGTTCAAAGAT-

TCGATGATTCACTGAATTCTGCAATTCACATTACTTATCG-
CATTTCGCTGCGTTCTTCATCGATGCCAGAACCAAGAGATCCGTTGTTGAAAGTTTAACTAT-
TATATAGTACTCAGACGACATTAATAAAAAGAGTTTTGGTTTTCTCTGGCGAGCATA-
CAAGGCCCCGAAGGCAGCTCGCCAAAGCAACAAAGTAATAATACACAAGGGTGGGAGGTC-
TACCCTTTCGGGCATGAACTCTGTAATGATCCTTCCGCAGGTTACCTACGGAAACCTT-
GTTACGACTTTTACTTCCTCAAGRGGACARRRACC

Description	Scientific Name	Max Score	Total Score	Query Cover	E value	Per. Ident	Acc. Len	Accession
Botrytis cinerea isolate R10 small subunit ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence	Botrytis cinerea	955	955	95%	0.0	99.43%	536	MK513827.1

Figure S2. Identification of dominant pathogenic fungi isolated from grape. (a: *P. expansum*, b: *A. niger* and c: *B. cinerea*.)

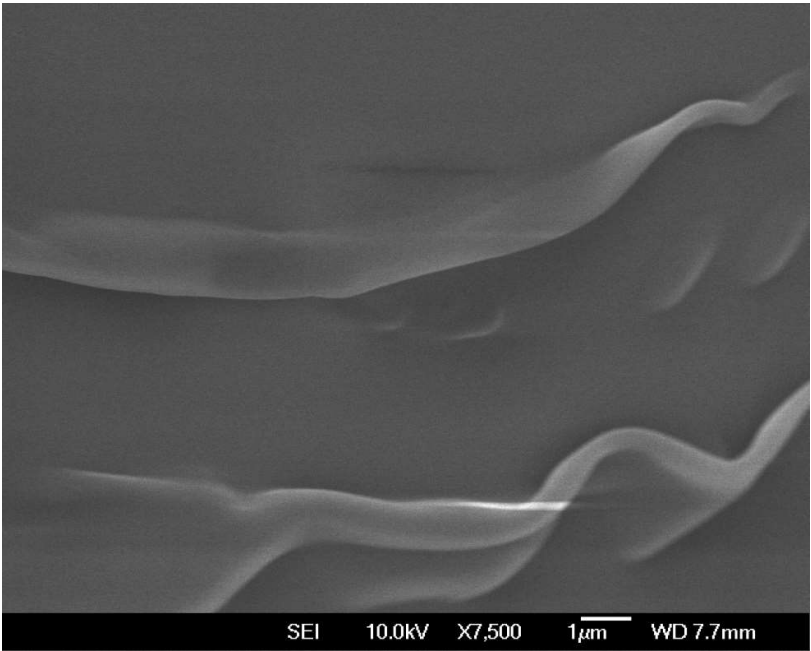


Figure S3. SEM image of the CS gel.

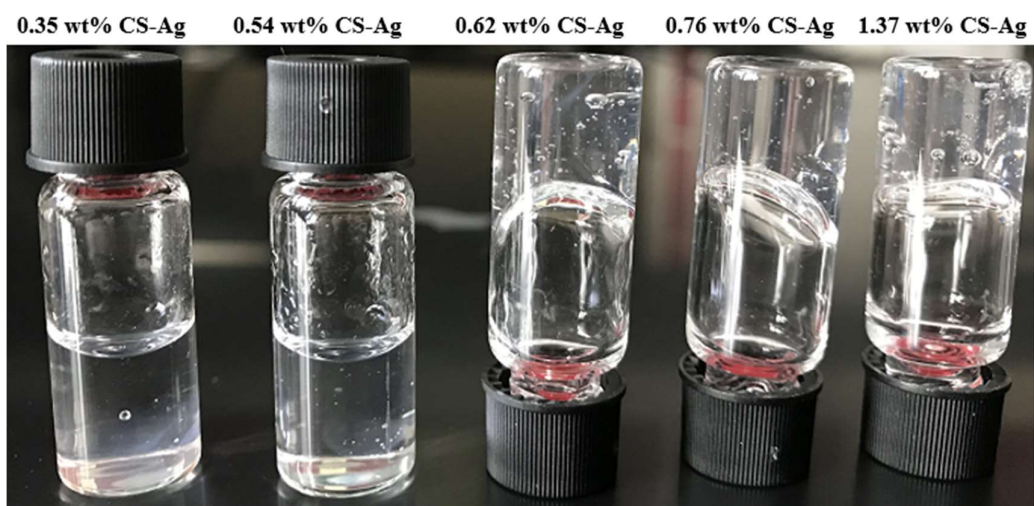


Figure S4. The CGC of CS-Ag complex hydrogel.

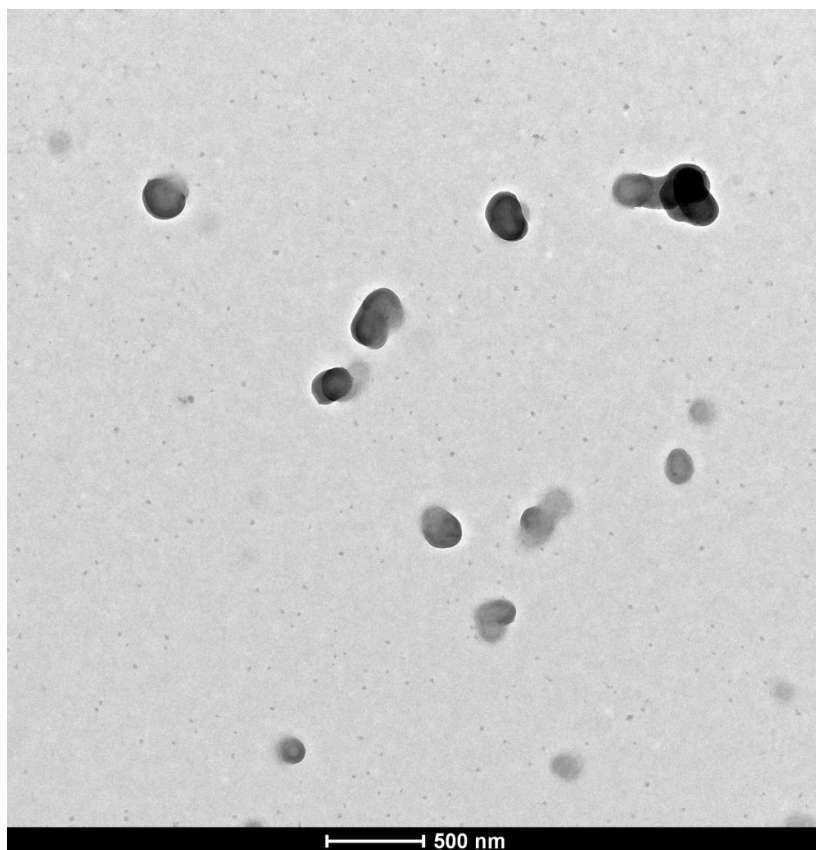


Figure S5. TEM image of AgNPs.

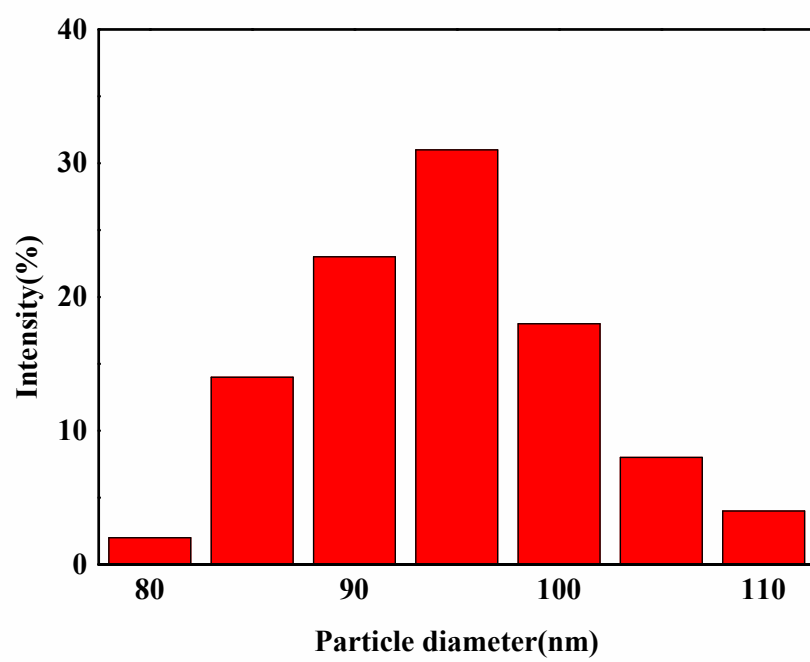


Figure S6. The size distribution of AgNPs.

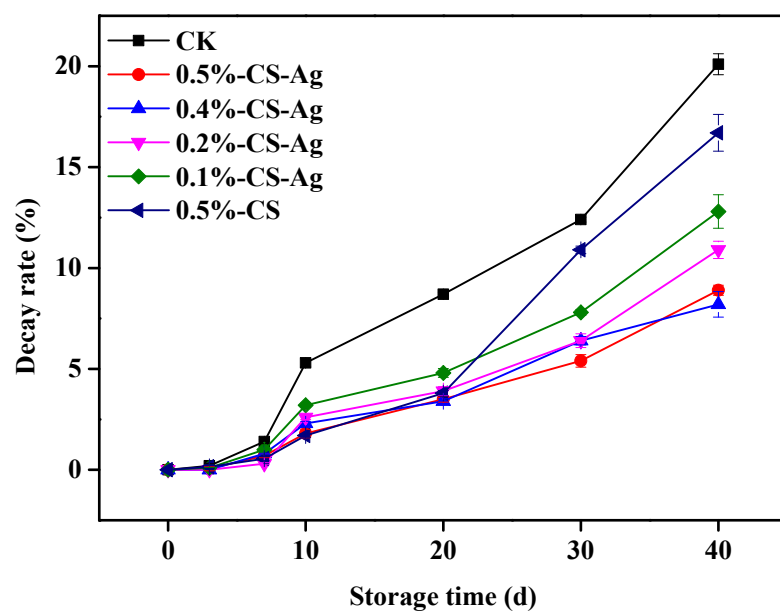


Figure S7. CS-Ag hydrogel effect on decay rate of grape during postharvest.

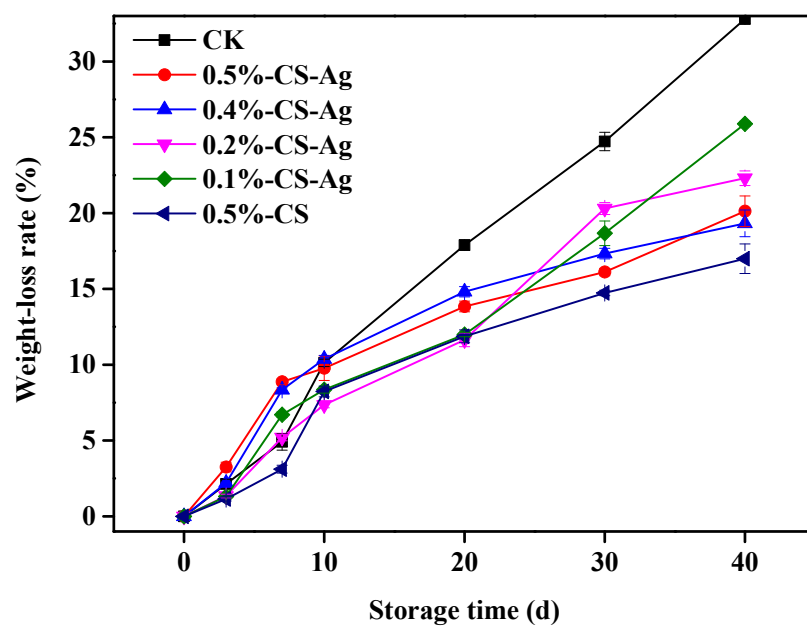


Figure S8. CS-Ag hydrogel effect on weight loss rate of grape during postharvest.

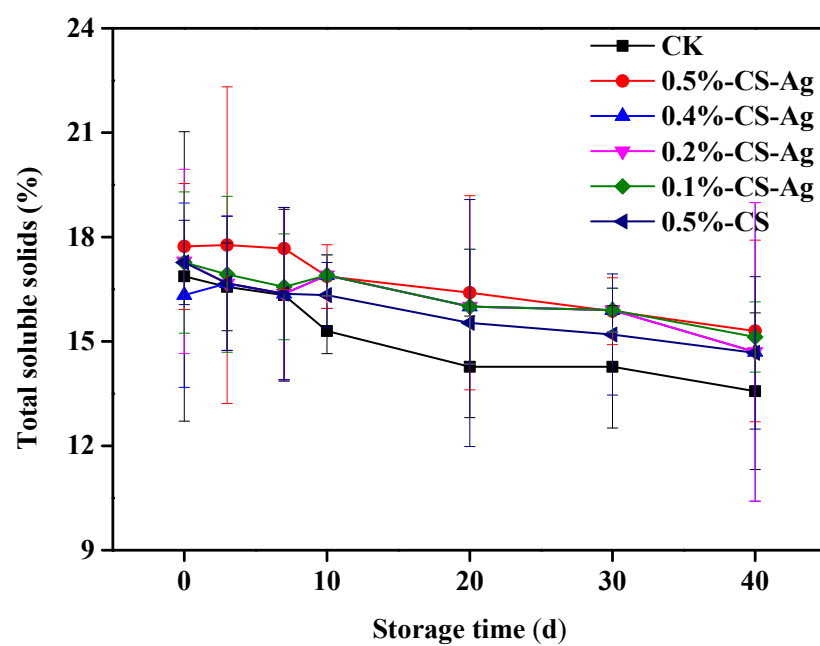


Figure S9. CS-Ag hydrogel effect on total soluble solids of grape during postharvest.

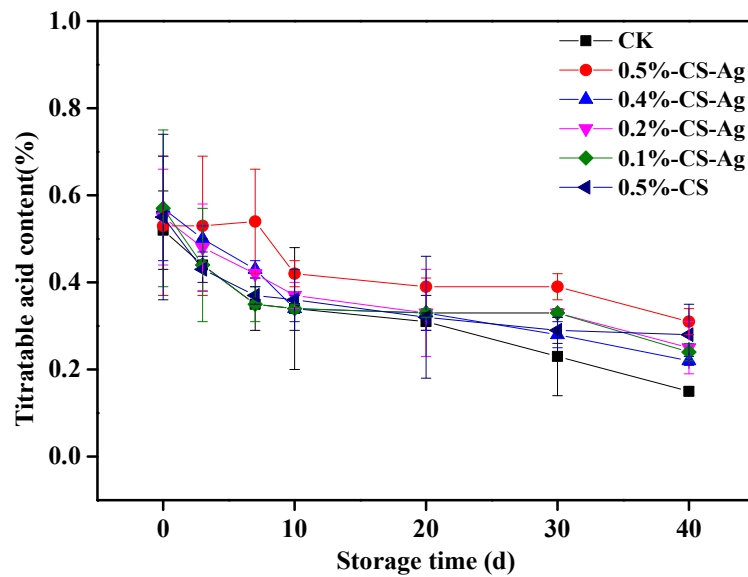


Figure S10. CS-Ag hydrogel effect on titratable acids of grape during postharvest.

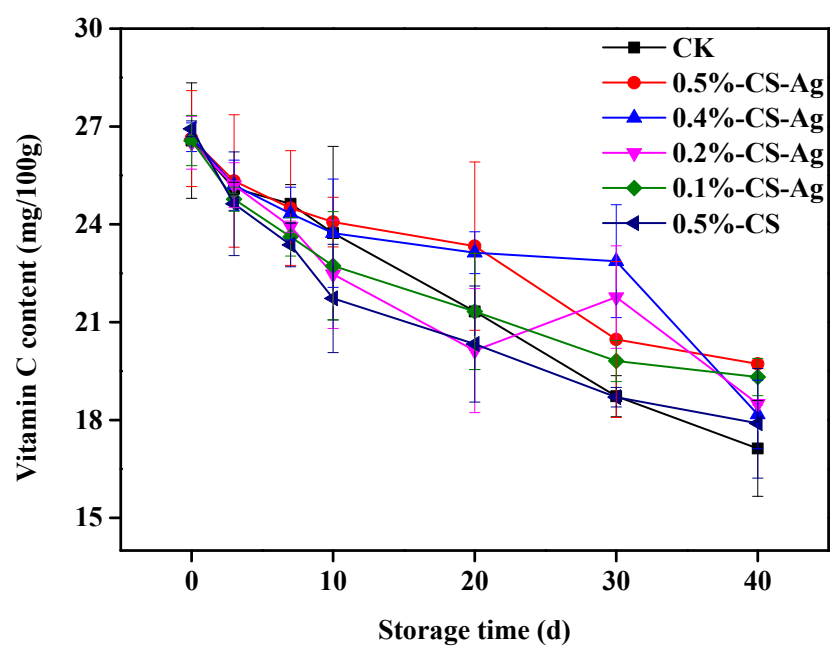


Figure S11. CS-Ag hydrogel effect on Vitamin C of grape during postharvest.