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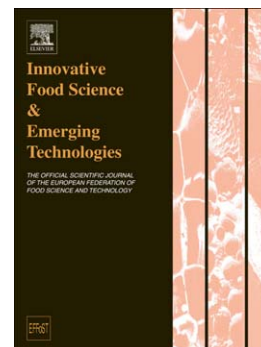
Postharvest treatment of nanochitosan-based coating loaded with *zataria multiflora* essential oil improves antioxidant activity and extends shelf-life of cucumber

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Postharvest treatment of nanochitosan-based coating loaded with *Zataria multiflora* essential oil improves antioxidant activity and extends shelf-life of cucumber

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Abstract

This study aimed to evaluate the effects of postharvest treatment with chitosan nanoparticles (CSNPs=T1) and *Zataria multiflora* essential oil (ZEO) incorporated into chitosan nanoparticles (ZEO@CSNPs=T2) on the shelf-life extension of whole cucumbers and antioxidant activities during cold storage. Two coating solutions (T1 & T2) were prepared by a method comprising oil-in-water emulsion and ionic gelation method at a final concentration of 1500 ppm. Cucumbers were dipped in those solutions for 2 min, then stored at 10 ± 1 °C with 90-95% RH for 21 days. Measurements of physicochemical and microbial growth were accomplished every 3 days. After 15 days, the percentage of fruit decay in the T2 coating was 2% vs. 12% and 97.7% in the T1 coated and uncoated fruits, respectively. Significant differences were obtained for weight loss, firmness, respiration rate, DPPH-radical

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