

**Title** Effect of chitosan–lemon essential oil coatings on storage-keeping quality of strawberry  
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### **Abstract**

Film-forming dispersions (FFD) were prepared with 1% high molecular weight chitosan and 3% lemon essential oil and were submitted to two different homogenization treatments. The particle size and viscosity of the FFD were evaluated and stand-alone coatings were characterized in terms of water vapour permeability (WVP) and antimicrobial activity. The FFD were applied to cold-stored strawberries, cv. Camarosa, and the physicochemical properties, fungal decay and respiration rate of strawberries were determined throughout cold storage at 5 °C. The use of microfluidization to prepare chitosan-based FFD led to a significant reduction in the particle size and apparent viscosity of the dispersions, with no significant effect on the decrease in the WVP of the stand-alone coatings. Chitosan coatings did not show a significant effect in terms of the acidity, pH and soluble solid content of strawberries throughout storage. In contrast, coatings slowed down the respiration rate of samples when lemon essential oil was added to the FFD. Adding lemon essential oil enhanced the chitosan antifungal activity both in *in vitro* tests and during cold storage in strawberries inoculated with a spore suspension of *Botrytis cinerea*.