

Title Characterization and effect of edible coatings on minimally processed garlic quality
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Abstract

The main benefits of edible active coatings are their edible characteristics, biodegradability and increase in food safety. In this study the physical properties of the agar-agar based (1%) coatings incorporated with 0.2% chitosan and 0.2% acetic acid, as well as their effects on coating of minimally processed garliccloves were evaluated. Moisture loss of coated garliccloves was, on average, three times lower when compared to the control samples (no coated garliccloves). There was a marked increase in color difference values (ΔE^*) for control cloves compared to the other treatments. Filamentous fungus and aerobic mesophilic were inhibited on garliccloves coating incorporated with acetic acid + chitosan antimicrobial compounds. During 6 days-storage, at 25 °C, the filamentous fungus and yeasts count was maintained between in 10^2 and 10^3 CFU g⁻¹ for the coated garliccloves and around 10^6 CFU g⁻¹ for the control. The coatings provided significant reduction ($p < .05$) in clove respiration. Coated garliccloves, had a respiration rate (≈ 30 mg CO₂ h⁻¹ kg⁻¹) halved compared to the non-coated garliccloves. Water vapor transmission was lower for the films added with chitosan. These films showed no visible color difference, possibly because of the reduced thickness, since chitosan films tend to have a more intense shade.