



האוניברסיטה העברית בירושלים
הפקולטה לחקלאות, מזון וסביבה ע"ש רוברט ה. סמית
המכון לביוכימיה, מדעי המזון והתזונה



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Title:

Biopolymer composites to prepare active films for food packages and coatings The inspiration from nanotechnologies

המפגש יתקיים

ביום ג', 26 מאי 2015, בשעה 10:00

מועדון סגל

(5/26/2015, 10:00, Faculty Club)

Abstract:

Edible films and coatings are a promising approach for controlling the quality and extending the postharvest shelf-life of fresh agricultural produce. To be applicable, edible films have to answer a long list of various requirements that single material is often unable to satisfy. Layer-by-Layer (LbL) method is based on the alternate deposition of various polymers to produce thin layers on the surface. LbL approach has great potential to control properties and functionality of edible films and coatings. In the present study, natural polymers were implemented for coating of agricultural produce. The performance of the LbL coatings was compared with single-layer coatings and with a non-coated control. The LbL coating was found to possess the beneficial properties of both ingredients. The bilayer coating slowed down tissue texture degradation, prevented an increase in headspace CO₂ and ethanol the signs of hypoxic stress and off-flavor and effectively inhibited microbial spoilage allowing significant elongation of fruits shelf life.

As another approach, anoemulsions were utilized to incorporate food sourced citral, sensitive and lipophilic active agent into a coating matrix. The properties and functionality of the nano-emulsified active edible films were compared to those of the coarse-emulsified films. The nano-emulsified films demonstrated improved mechanical properties (tensile strength, elongation at break and Young modulus) as compared to the corresponding coarse-emulsified films. The effect of active edible coatings on quality, storability and microbial safety of the food products was examined on fresh-cut melon model. Active coatings demonstrated improvement of physiological parameters of the fruit and reduction of the bacterial growth.

סגל וסטודנטים מוזמנים להשתתף

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