

ABSTRACT

Sianny Priskila Setiadi (1305004220)

CHARACTERIZATION OF EDIBLE FILM FROM LESSER YAM STARCH-PLASTICIZER ADDED WITH SODIUM BENZOATE OR OREGANO OIL AND ITS APPLICATION AS EDIBLE COATING TO STRAWBERRY

(xiv+ 85 pages: 9 tables, 36 figures, and 15 appendices)

Lesser yam starch-based edible coating has shown to improve shelf life of strawberry. Sodium benzoate and oregano oil were synthetic and natural antimicrobials that had been widely recognized for its antimicrobial activity. This research aimed to investigate the effect of sodium benzoate and oregano oil as chemical and natural antimicrobials on the characteristics of lesser yam starch-based edible film. Three best formulation for edible film incorporated with chemical antimicrobial were: 4.5%St-5.5%So-0.15%SB, 4.5%St-5.5%So-0.25%SB, and 6.5%St-5.5%So-0.10%SB. Three best formulation for edible film incorporated with natural antimicrobial were: 6.5%St-5.5%So-0.10%OR, 6.5%St-5.5%So-0.30%OR, and 6.5%St-5.5%So-0.50%OR. In total of 6 formulations, these formulations were used as edible coating to strawberry to determine its shelf life and changes in its characteristics at room (28-30 °C) and refrigeration (5-6 °C) temperature storage. Coated strawberries with antimicrobials have shown better result in retaining weight loss, hardness, pH, total titratable acidity, lower total sugar, and decreased microbial count in comparison to control I (uncoated) and control II (coated strawberries without antimicrobials). From the sensory evaluation, panelists could detect the off odor and flavor in coated strawberries incorporated with oregano oil, but not with sodium benzoate. At room temperature, uncoated strawberry was found to last for 2 days while coated strawberry with the addition of antimicrobials was prolonged up to 7 days. At refrigeration temperature, the shelf life of uncoated strawberry was extended up to 9 days whereas the shelf life of coated strawberry that was incorporated with antimicrobials was prolonged up to 26 days. Therefore, incorporation of antimicrobials in edible coating formulations for strawberries lengthened the shelf life of the fruit while relatively maintaining coated fruit quality.

Keywords: Edible coating, edible film, lesser yam starch, oregano oil, sodium benzoate, strawberry

References: 74 (1971-2016)