ABSTRACT

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CHARACTERIZATION OF EDIBLE FILMS PREPARED FROM BASE FORMULATIONS AND CINNAMON EXTRACT OR ANISE OIL AS NATURAL ANTIMICROBIAL, AND APPLICATION AS EDIBLE COATING TO STRAWBERRY

(xiv + 175 pages: 7 tables, 26 figures, and 15 appendices)

Cinnamon and anise had been reported for its antimicrobial activity towards a broad range of microbes. This research was aimed to investigate the effect of cinnamon extract and anise oil as antimicrobial on the characteristics of edible film from base formulations. The characteristics of edible film were analyzed to get three selective formulations from each natural antimicrobials, to further used as coating to strawberry. From this research, the formulations that were chosen were 3.5%-2.5%G-0.5%CE, due to the low water vapor transmission rate; 3.5%-2.5%G-0.7%CE, due to the high elongation; 3.5%-2.5%S-0.3%CE, due to high tensile strength. The formulations from anise oil that were chosen were 3.5%-2.5%G-2%AO, due to low water vapor transmission rate, a high elongation, and thin layer; 3.5%-2.5%S-3%AO, due to the moderate elongation and tensile strength; 3.5%-2.5%S-4%AO, due high concentration of anise oil and moderate tensile strength. The selective formulations were applied as edible coating to strawberry to determine the shelf life and quality changes at room (27-30 °C) and refrigeration (0-4 °C) temperature storage. The quality changes observed were weight loss, loss of hardness, lowered pH, lowered total titratable acidity, increased total sugar, and increased microbial count during storage. The shelf life of the coated strawberry was up to 41 days in refrigeration temperature storage and 5 days in room temperature storage, compared to that of uncoated strawberry (control), which was 11 days in refrigeration temperature storage and 2 days in room temperature storage.

Keywords : Anise oil, cinnamon extract, edible coating, edible film, strawberry

References : 70 (1978-2015)