ABSTRACT

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EFFECT OF JACKFRUIT-SEED STARCH, BEESWAX AND PLASTICIZERS ON COMPOSITE EDIBLE FILM CHARACTERISTICS AND ITS APPLICATION AS EDIBLE COATING TO STRAWBERRY FRUITS

(xvi + 76 pages; 7 tables, 27 figures, and 14 appendices)

Jackfruit seed starch mixed with plasticizers has been used as edible coating to improve the strawberry’s shelf life. Beeswax had been reported for its moisture and oxygen barrier in the application as edible coating. This research was aimed to investigate the effect of composite edible film consisting of jackfruit seed starch, beeswax, and different plasticizers (glycerol or sorbitol). The characteristics of edible film were analyzed to get three selected formulations from each plasticizer type and used as coating to strawberry. From this research, the formulation that were chosen from glycerol plasticized film were 5.5%-1.8%S-10%B, due to highest tensile strength, very low WVTR, and moderate elongation; 5.5%-1.4%G-30%B, due to lowest WVTR, moderate tensile strength and elongation; and 3.5%-1.4%G-10%B, due to very low WVTR, very high elongation, and moderate tensile strength. The formulation from sorbitol plasticized film that were chosen were 5.5%-2.2%S-20%B, due to high tensile strength, moderate low WVTR, and moderate elongation; 4.5%-2.2%S-10%B, due to highest tensile strength, moderate low WVTR, and moderate high elongation; and 3.5%-1.8%S-20%B, due to very low WVTR, high tensile strength, and very high elongation. The selected formulations were prepared as suspension and applied on strawberry as edible coating to determine the shelf life and quality changes at room (28-30 °C) and refrigeration (7-8 °C) temperature storage. The quality changes observed were weight loss, hardness loss, lowered pH, lowered total titratable acidity, increased total sugar, and increased microbial load during storage. The shelf life of the coated strawberry was increased up to 3 days at room temperature storage, while the uncoated strawberry as control was up to 2 days. At refrigeration storage, coated strawberry can be stored up to 20 days, compared to uncoated strawberry, which was only 10 days. Therefore, the composite edible coating made from jackfruit-seed starch, beeswax, and plasticizers improved strawberry shelf life and relatively maintained the coated fruit quality.

Keywords: Beeswax, composite edible film, edible coating, jackfruit seed starch, glycerol, sorbitol, strawberry

References: 87 (1956-2016)