EFFECTS OF ALGINATE COATING LOADED WITH LEMONGRASS ESSENTIAL OIL- CYCLODEXTRIN INCLUSION COMPLEX ON THE POSTHARVEST QUALITY OF CALAMANSI *(Citrus microcarpa)*

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ABSTRACT

Calamansi (*Citrus microcarpa*) is locally grown in the Philippines and is considered to be an important commodity because of its wide range of uses. Losses of this fruit in the country already reached up to 30% because of postharvest degradation. To address this problem, three coating treatments (1% alginate, 1% alginate loaded with lemongrass essential oil-β-cyclodextrin inclusion complex, and 1% alginate loaded with lemongrass essential oil-hp-β-cyclodextrin inclusion complex) were made for the purpose of examining their potential in the preservation of the postharvest quality of calamansi. Quality parameters such as color and weight loss of calamansi, as well as pH, FTIR spectra, total soluble solids, and titratable acidity of the fruit juice were evaluated in a span of 15 days at room temperature storage. Results show that the prepared edible coatings did not significantly preserve the postharvest quality of calamansi ($p > 0.05$) as coated samples resulted to earlier appearances of yellow and brown peel color, higher weight loss percentages, pH, and total soluble solids content. Out of the three coating treatments, fruit samples coated with 1% alginate resulted to lower weight loss percentages, pH, TSS, and TA. Fruit samples coated with 1% alginate loaded with lemongrass essential oil-hp-β-cyclodextrin inclusion complex resulted to the highest pH, TSS, and TA, while those coated with 1% alginate loaded with lemongrass essential oil-β-cyclodextrin inclusion complex resulted to the highest weight loss percentages. Data on the titratable acidity weren't conclusive since the results obtained were not in agreement to the expected outcome. The ineffectiveness of the coatings may be a result of unfavorable storage conditions and incompatibility of the coating materials or formulations on the calamansi.