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Studies on the Shelf Life Extension of Guava using Clove Oil Based Nanoemulsion

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Abstract—*The aim of the present research work is to evaluate the shelf life of guava fruit coated with clove essential oil based nanoemulsion. Probe sonication method was employed for the preparation of nanoemuslion by using soy lecithin (1.5%) as an emulsifier. A thin layer of nanoemulsion coating was applied on the surface of guava using brushing technique. Coated guavas were kept for storage for a period of 30 days at two temperature conditions, ambient room temperature (25°C) and refrigeration (7°C). The guava samples were assessed for physiological and chemical quality changes. Physiological parameters (weight loss, color and firmness), titrable acidity (TA) and total soluble solids (TSS) were analyzed for 15 days at an interval of 3 days at both storage temperatures. Whereas, ascorbic acid and antioxidant activity were evaluated at an interval of 15 days. Results of the study indicated that guava samples coated with nanoemulsion stored at refrigerated condition were most stable with least changes in the weight loss, color and firmness values. Titrable acidity and TSS values of the coated samples did not show significant differences. Increase in the storage period had a negative effect on the antioxidant activity and ascorbic acid content of the samples with a decrease of 30.92% of DPPH radical scavenging activity in uncoated samples against 23.8% loss in coated ones when stored at refrigerated conditions. Higher losses of ascorbic acid values were observed for uncoated guava samples with a total decline of 25.16% when compared with nanoemulsion coated ones after 15 days of storage.*

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