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IN-VITRO ASSESSMENT OF ALOE VERA GEL AS A BIO PRESERVATIVE OF PAPAYA FRUITS

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*Department of Agricultural Biology, Faculty of Agriculture, University of Jaffna, Sri Lanka***ABSTRACT**

The medicinal plant, *Aloe vera* has potential in industrial perspective as well as traditional usage. The gel obtained from the leaves of *A. vera* has numerous properties such as it has oxidase, an antioxidant and also its natural biocide activity or the incorporation of antimicrobial compounds. This study aims using the gel to extend the shelf life of papaya fruits. Even size, uniform shaped and coloured, matured Red lady cultivar of papaya fruits were surface cleaned and coated with 33%, 66% and 100% gel while another group of papaya fruits were not coated and kept as control (0.0%). Gel dilutions were prepared with distilled water then fruits were dipped for 2-3 sec. The experiment was conducted using completely randomized design. Twenty four even size papaya fruits were selected and kept as four main groups. Each group had six papaya fruits. Physicochemical parameters such as colour, decay percentage, weight loss, pH, and Total Soluble Solids (TSS) were measured. Due to the coating, the ripening process was delayed, The TSS (Total Soluble Solid), pH and weight loss were high in uncoated fruits. Decay or damage percentage also high for the control fruits than coated fruits. The mean pH of the pulp of control fruits was 5.11 at 4 days Fruit preservation period (FPP) and was slightly increased to 5.32 within 12 FPP, whereas minimal pH was noticed in 100% (4.17 at 4 FPP and 5.09 at 12 FPP) gel coated fruits. The TSS was significantly higher levels (12.9 within 4 FPP and 13.33 within 12 FPP) in control fruits, whereas the minimum TSS value was 11.40 and 11.97 within 4 days and 12 FPP, respectively, and recorded from the 100% gel coated fruits in storage. The WLP (Weight Loss Percentage) was significantly ($p < 0.05$) higher in 33% gel treated fruits (44.80+4.88%) whereas lower WLP (24.80+7.33%) was found in 100% gel coated fruits after 12 days of storage. Lowest disease signs and decay were observed in 100% gel coated fruits. This was due to the anti-microbial potential of coated materials. The gel coating prolonged the fruits shelf life by delaying the ripening and preventing the microbial activities due to their bioactive agents.

Keywords: *Aloe vera*, bio-preservation, total soluble solid, pH, gel, damage and weight loss percentage