

A Study to Enhance the Shelf Life and Postharvest Quality of Tomato (*Solanum lycopersicum* L.) using Aloe Vera Herbal Coating

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Tomatoes have limited marketability owing to its high moisture content and high degree of perishability which leads to extensive postharvest losses. It is estimated that 40-60% of the harvested tomatoes go waste annually. There has been increased usage of Aloe vera gel as a herbal coating for fruits owing to its antimicrobial properties. In this study, the effectiveness of Aloe vera gel coating on the shelf life and quality of tomatoes were investigated. The mature green tomatoes were dipped in the concentrations of 1, 2, 3 and 4% (w/v) Aloe vera gel solutions for 5 min and air-dried for 24 hrs. The coated fruits were stored at 30°C and 90% RH for 30 days along with the uncoated controls. The nutritional properties, sensory acceptance and microbiological studies were carried out for all the treatments. Herbal coating significantly enhanced the firmness and reduced weight loss, delayed changes on total soluble solids and retarded the loss of total acidity compared with uncoated tomatoes. Fruits coated with 2% of Aloe vera gel showed greater retention of ascorbic acid, titratable acidity and total sugars of 11.26 mg%, 0.53% and 12.5% respectively, following 28 days of storage at 30°C. Sensory evaluation was done using 30-trained panelists and the results revealed that the use of the Aloe vera gel coating increased the acceptability of tomatoes. The determining factor of shelf life of tomatoes was the microbial spoilage. The Aloe vera gel coated tomatoes showed reduced number of microbial growth than that of control. The shelf life of tomatoes coated with 1 and 2% of Aloe vera gel increased up to 21 and 28 days respectively, without decay while tomatoes coated with 3 and 4% Aloe vera gel solution showed lower shelf life of 20 and 12 days respectively, with higher percentage decay. The control tomatoes decayed at the end of the 10th day of storage. Therefore, Aloe vera gel solution of 2% could be used as an edible herbal coating to enhance of shelf life of tomatoes.

Key words: Aloe vera gel, Herbal coating, Quality, Shelf life, Tomatoes.