



**Title :** Study of the effect of Aloe vera and Foeniculum vulgare on the shelf-life and characteristics of Achrassapota.

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### Introduction:

Fruits and vegetables, undergo a wide variety of physical and chemical changes which alters their nutritive value, flavor, texture, pigmentation—and hence, quality<sup>1</sup>. Lin and Zhao have outlined physical factors like loss of moisture, energy and food components, pest and insect attacks, seed germination, greening, microbial spoilage and physiological disorders as major causes of post-harvest losses.<sup>2</sup> Edible coatings are known to extend the shelf-life of fresh produce by forming a semi-permeable barrier around them and retarding the exchange of gases, moisture and volatile flavor compounds. An edible coating prepared from naturally occurring bioactive substances, such as Aloe vera leaf gel and Foeniculum vulgare (Fennel) seed extract can be used to increase the shelf life of Achrassapota or Chikoo fruit.

### Methodology:

The aim of this study was to determine shelf life of chikoo fruit after the application of Aloe vera gel-based coating solution, incorporated with aqueous extract of Foeniculum vulgare at different concentrations. Unripe chikoo fruits were treated with i. Aloe vera gel solution and ii. Aloe gel incorporated with Foeniculum vulgare extracts (at 10% and 20%). The control (uncoated) and coated fruits were stored at 20°C ± 2°C for 5 days. . Physiological weight loss (PLW), firmness, Total Soluble Solids (TSS), Titrable Acidity (TA), pH, microbial load and sensorial properties were analyzed at 1-day intervals up to 5 days.

### Result:

After 5 days of storage, chikoo treated with 10% solution had slower rate of increase in weight loss, TSS and pH, and scored the highest on sensory evaluation. Also after 5 days of storage, chikoo fruits treated with 0% solution showed slightly lesser increase in firmness and Brix-acidity ratio and had the lowest microbial count ( $p > 0.05$ ).

### Conclusion:

The results indicate that plain Aloe gel solution, and Aloe gel solution incorporated with 10% aqueous fennel extract could play a potential role in delaying the ripening of chikoo up to 5 days of storage. Edible coatings can delay the transfer of gases and volatile compounds, slow down the rate of respiration and senescence, and thereby prevent losses in aroma, moisture and color of the fresh produce, and hence they show substantial potential to be used in prolonging the shelf-life of fresh produce.

### References:

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