



THE EFFECT OF EDIBLE COATINGS ON THE QUALITY OF FRESH BLUEBERRIES

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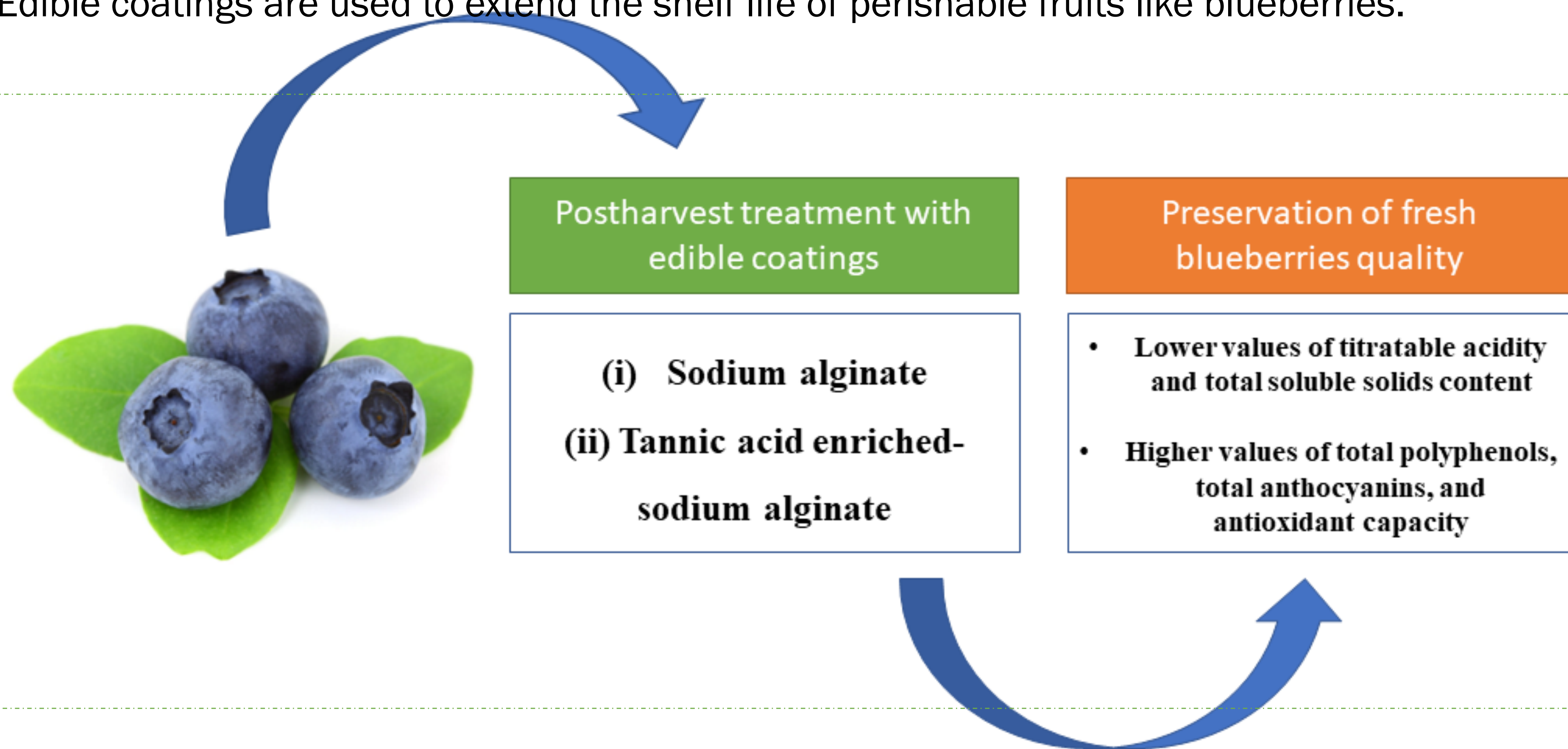
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INTRODUCTION

Blueberries (*Vaccinium corymbosum* L.) are well known for their great taste, high concentration of bioactive compounds, and numerous health benefits they offer to consumers. Fresh blueberries are very sensitive during the postharvest period mainly caused by water loss, mold decomposition, and metabolic changes. Blueberries have a shelf life of 7 to 40 days at 4 °C, depending on characteristics such as fruit cultivar, storage conditions, and maturity harvest technique. Edible coatings are used to extend the shelf life of perishable fruits like blueberries.

MATERIALS AND METHODS

This research reports use of two types of hydrogel coatings in postharvest treatment of fresh blueberries: (i) sodium alginate (2 % (w/v)) (ii) and tannic acid (1 % (w/v)) enriched sodium alginate (2 % (w/v)). Fruit quality was evaluated for weight loss, titratable acidity, total soluble solids content, total polyphenolic content, total anthocyanin content, and antioxidant capacity.



RESULTS

Figure 1. Influence of the edible coating on the fresh blueberries' weight loss over time.

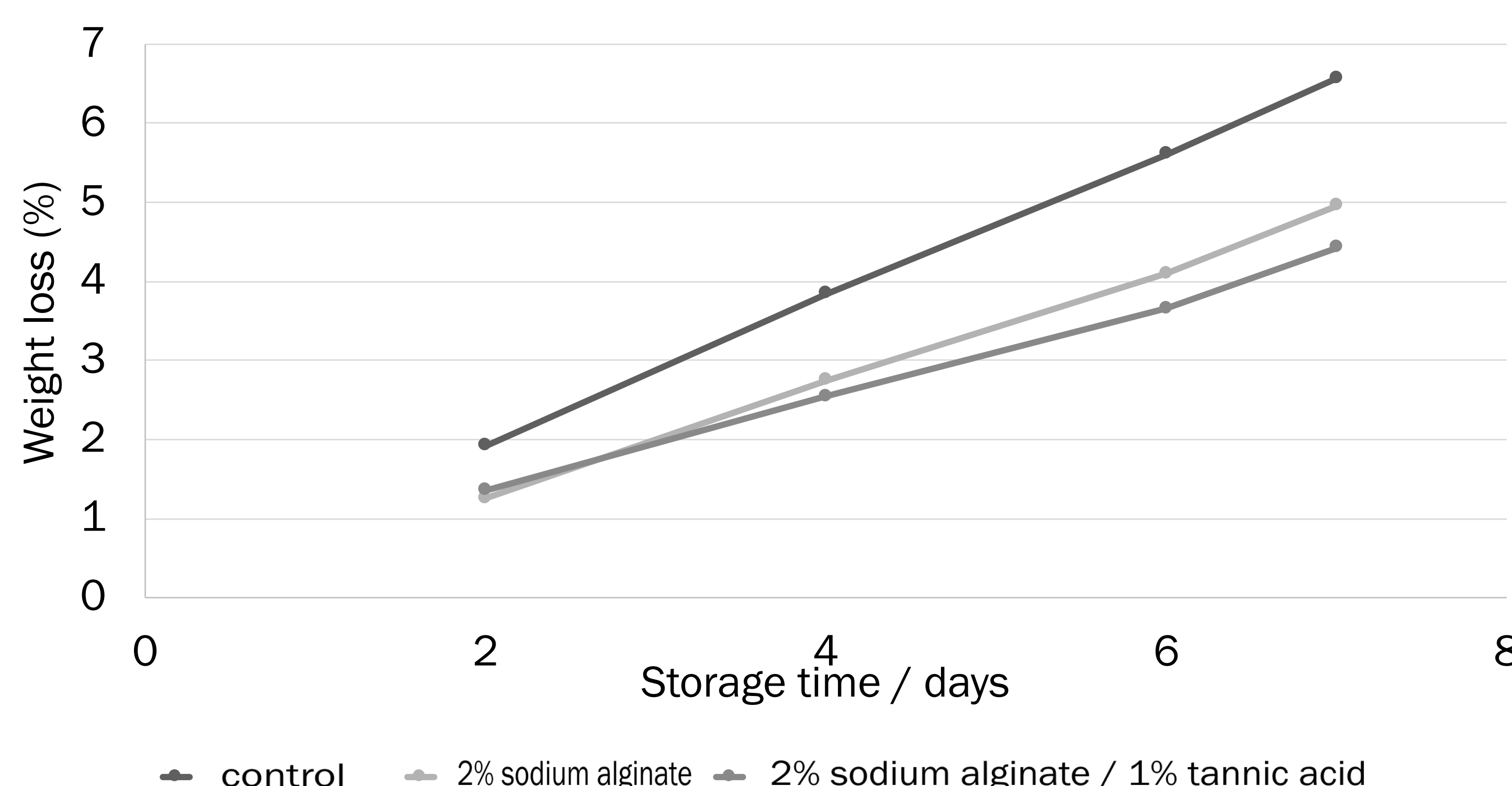


Table 1. Total soluble solids in fresh blueberries stored at room temperature over time.

Sample / treatment	Total soluble solids (%)
(Day 0) no coating	12.1
(Day 7) 2% sodium alginate	13.8
(Day 7) 2% sodium alginate / 1% tannic acid	15.6
(Day 7) control	15.2

Table 2. Total polyphenolic compounds, antioxidant activity and total anthocyanins in fresh blueberries stored at room temperature over time

Sample / treatment	Total polyphenolic compounds (mg gallic acid equivalents/100 g)	Antioxidant activity - DPPH (μmol equivalents/100 g)	Total anthocyanins (mg Cyanidin-3-rutinoside equivalents/100 g)
(Day 0) no coating	150.58 ± 6.25 ^a	275.00 ± 14.26 ^a	32.42 ± 0.12 ^a
(Day 7) 2% sodium alginate	155.17 ± 4.43 ^a	267.38 ± 8.42 ^a	32.00 ± 0.61 ^a
(Day 7) 2% sodium alginate / 1% tannic acid	149.98 ± 2.77 ^a	276.01 ± 6.02 ^a	32.66 ± 0.58 ^a
(Day 7) control	107.20 ± 2.43 ^b	217.78 ± 12.34 ^b	31.12 ± 1.32 ^a

Values superscripted with the same letter in a column are not significantly different according to the Tukey HSD test ($p < 0.05$)

CONCLUSIONS

Sodium alginate coated samples showed lower values of total soluble solids content and titratable acidity compared to the control samples while tannic acid-enriched sodium alginate coated samples had significantly higher values of total polyphenols, total anthocyanins, and antioxidant capacity.

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