From Spice to Shelf Life: Turmeric as a Natural Protector of Strawberries

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Introduction

Strawberries are highly perishable fruits with a short postharvest shelf life due to water loss, softening, microbial spoilage and oxidative processes.

Edible coatings can provide a protective barrier and help maintain fruit quality during storage.

Turmeric contains bioactive compounds with antioxidant and antimicrobial properties, making it a promising natural ingredient for edible coatings.

Aim

To evaluate the effect of turmeric-enriched edible coatings on strawberry quality and selected bioactive compounds during storage.

Materials

Fruit: Strawberry (Fragaria × ananassa Duch.) cv. 'Albion'
Harvest date: May 20, 2026
Growing conditions: Greenhouse
Location: Donja Lomnica, Croatia
Fruit source: Jagodar-HB

Edible coating

Two coating formulations were prepared:

- CMC coating (carboxymethyl cellulose, 1% (w/v))
- CMC coating enriched with turmeric extract

Turmeric powder + 30% alcohol solution

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Ultrasonic bath (40°C; 30 min)

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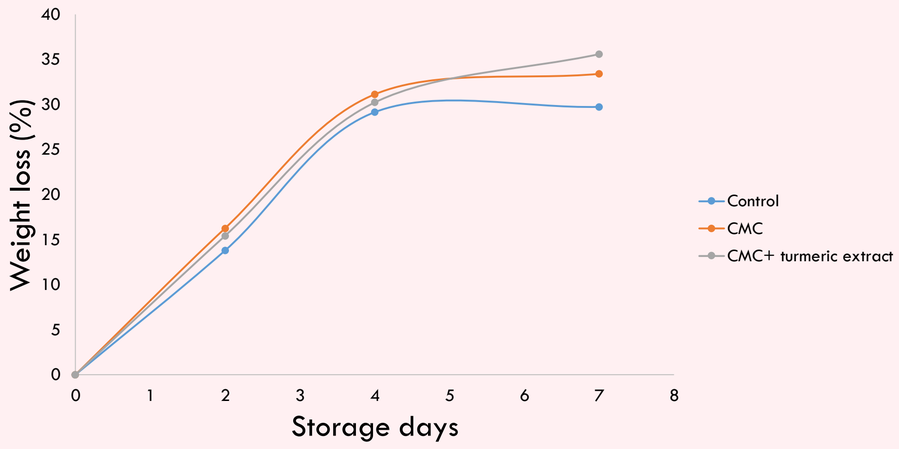
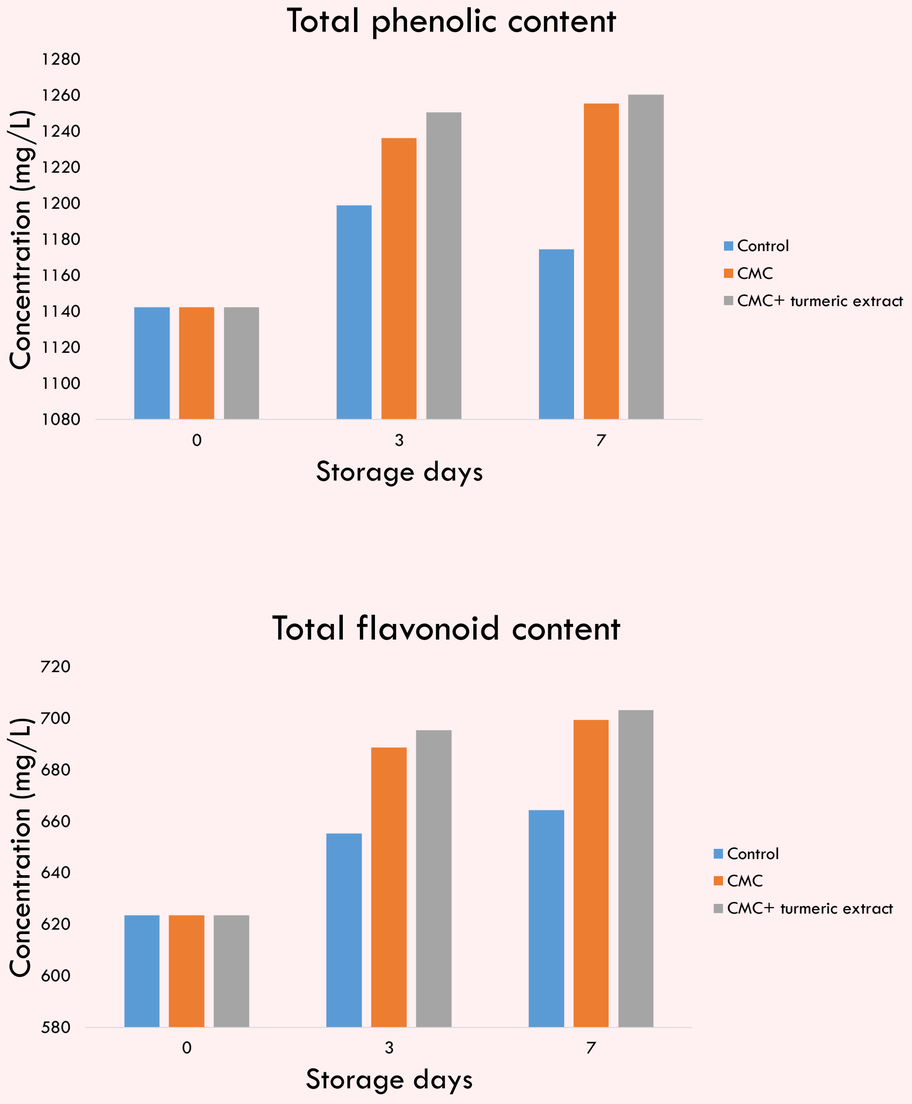
Turmeric extract

Weight loss during storage



Total phenolic content



Total flavonoid content

Conclusion

- During storage, weight loss increased in all treatments, with the highest final weight loss observed in strawberries coated with CMC + turmeric extract
- In contrast, the edible coatings, particularly CMC enriched with turmeric, resulted in higher total phenolic and flavonoid contents compared with the initial values and the untreated control
- Overall, turmeric-enriched edible coating showed potential for preserving bioactive compounds in strawberries, although it did not reduce weight loss under the conditions of this study

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