

POSTHARVEST HANDLING FACTORS AFFECTING ANTIOXIDANT CONTENT OF HORTICULTURAL PLANTS: A REVIEW

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Background/Objective

Micronutrients and antyoxydants are important to maintain and promote good health condition

The Aim of this work is to review the effects of postharvest handling on fruits and vegetables quality and their antioxidant properties.

Fruits and vegetables are potentially rich in micronutrients and antioxydant

Post harvest tratments (Fig 1) can affect content of micronutrients and antioxydants

Micronutrients and antioxydant are Sensitive to light, temperature, oxygen, ...etc.

Effect of size reduction / fresh-cut on antioxidant

Vitamin C

- Negatively affected by fresh cut
- Reduction of 34% in Apium fresh cuts

Carotenoids

- More stable though some mild reduction effect can be observed in selected fruit
- Higher in whole than fresh-cut fruit

Total phenolic and antioxidant capacity

- vary according to used treatments
- Increase significantly in 60°C treated fresh-cut onion (Siddiq *et al.* 2013)

Effect of modified/controlled atmosphere (MAP) and packaging on antioxidants

vitamin C

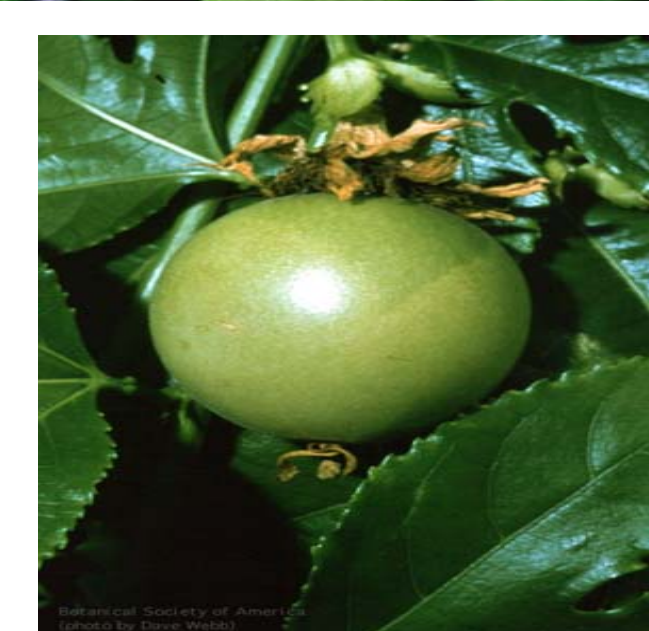
- MAP is a Good way to monitor Vitamin C in fruit and vegetable

carotenoids

- No significant effect on Carotenoids whatever the type of MAP

Antioxidant activity

- Varies from one fruit to another and according to MAP conditions



Results

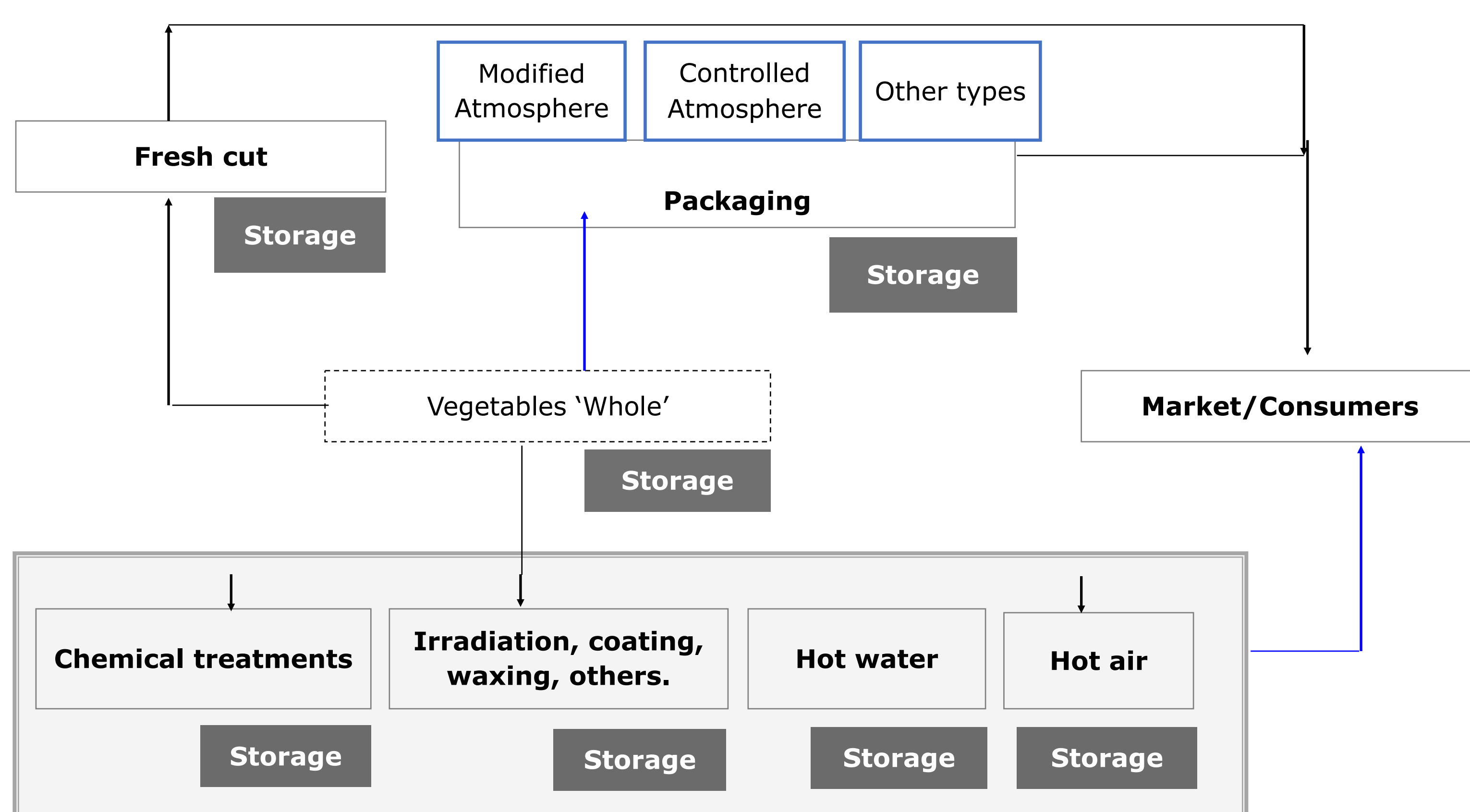


Figure 1. Postharvest handling of vegetables

Effect of storage temperature, storage time and humidity on antioxidant is very variable according to fresh produce

Vitamin C retention is favored by low storage temperature but retention but this retention is lowered by bruising, mechanical injuries, and by excessive trimming

Carotenoids show various tendencies
 Total phenolic is much various and even sometimes increases its proportion

Conclusion /Recommendation

Postharvest handlings affect the quality and antioxidant content of fruits and vegetables. Maximum nutrients and antioxidants retention should be promoted.

Acknowledgments



References

Siddiq, M., S. Roidoung, D. S. Sogi, and K. D. Dolan. 2013. Food Chemistry 136:803–806.

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