POST
HARVEST
_CARE

extending
shelf-life

by BION

CARROT

Ethylene effects

- Accelerated **senescence** and **loss of green color** (yellowing) in leafy and immature fruit vegetables (cucumbers, okra, broccoli).

- **Abscission of leaves** (cauliflower, cabbage, foliage plants).

- **Sprouting**: stimulation or retardation (potato, onion, garlic).

- Induction of **phenolic synthesis**:
  - **Bitter principle** (*isocoumarin)* in carrot roots.
  - **Toxic ipomeamarone** in sweet potato roots
  - **Russet spotting** on lettuce.
  - **Lignification** of asparagus

- **Spoilage** by pathogens.

Ethylene effects

• Exposure to ethylene will induce the development of **bitter flavor due to isocoumarin formation:**

"Exposure to as little as 0.5ppm exogenous ethylene will result in perceptible bitter flavor, within 2 weeks, at normal storage conditions. Thus, carrots should not be mixed with ethylene-producing commodities" (UCDavis)

• Ethylene exposure will also accelerate **dehydratation, browning and decay.**

Ethylene Threshold

Importance of low ethylene levels to delay senescence of non-climacteric fruit and vegetables

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Summary. The storage life of a range of non-climacteric fruit and vegetables was assessed during storage at ambient temperature (20°C) and low temperature (0–5°C) and ventilation with air containing ethylene over the range <0.005–10 µL/L. The storage life of Chinese cabbage and orange was found to be linearly extended with a logarithmic reduction in ethylene concentration. Across 23 kinds of produce, there was about a 60% extension in postharvest life when stored in <0.005 µL/L compared with 0.1 µL/L, the commonly considered threshold level for ethylene action. It is suggested that the threshold level of ethylene action on non-climacteric produce is well below 0.005 µL/L and that the level of ethylene that accumulates around produce in all commercial situations is always much greater than 0.005 µL/L. Hence, any postharvest action that reduces the accumulation of ethylene around non-climacteric produce during marketing will result in an increase in postharvest life.

Different vegetables

Appearance of vegetables stored **for 10 days with** (left) and **without** (right) **BION**

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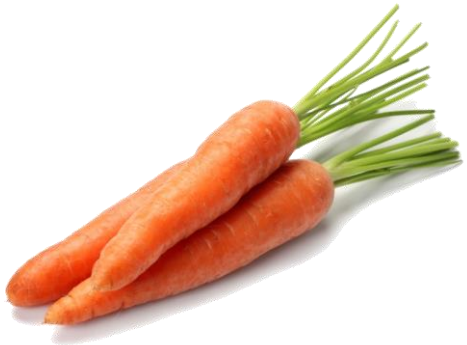
Benefits of use

- Increases **commercial life** of produce.
- Reduces **waste** (excess of ripening, rottening…).
- Keeps **colour.**
- Removes **odours** in the cold chambers.
- Is **disposable.**
- Avoids **complaints/returns/renegotiations** from clients.
- Allows benefits from price **fluctuations.**
- Is **harmless** to workers, produce and environment.
- Is **easy** to handle and **cheap.**
- Enhances product and company **image.**
- Is usable in **organic** products.



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