



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF FOOD TECHNOLOGY

19FTT305-FRUIT AND VEGETABLE TECHNOLOGY

UNIT 2- POSTHARVEST PROCESSING AND STORAGE



Control Atmospheric Storage (CAS)

This method involves controlling the atmosphere surrounding the stored produce. It typically reduces oxygen levels and increases carbon dioxide and nitrogen levels, which slows down the respiration and ripening process of fruits and vegetables.

CAS systems control temperature, humidity, and gas concentrations to create an optimal storage environment. By reducing oxygen levels, the respiration rate of the produce is slowed down, which helps to extend shelf life.

Benefits:

- Slows down ripening and decay.
- Reduces spoilage and the growth of pathogens.
- Keeps the produce fresh for longer periods



Hypotactic Storage

This refers to storage methods that manage both the temperature and humidity levels precisely, typically in a controlled atmosphere. It is aimed at maintaining the balance between the cooling process and moisture retention.

The term "hypotactic" is used here to describe the fine-tuning of environmental parameters such as temperature, humidity, and sometimes even pressure. By adjusting these variables, it helps maintain freshness and prevents wilting or desiccation in vegetables and fruits.

Benefits:

- Keeps produce at an optimal moisture level.
- Reduces shriveling and dehydration.
- Maintains a high-quality appearance and taste.



Cool Store

Cool storage simply refers to refrigerated storage that reduces the temperature of fruits and vegetables to slow down ripening and preserve them longer.

Typically, the produce is stored at temperatures just above freezing (depending on the type of fruit or vegetable) to slow down metabolic processes. Cool storage can range from standard refrigeration to more advanced cold chain solutions.

Benefits:

- Preserves flavor, texture, and nutrients.
- Prevents over-ripening and spoilage.
- Allows for longer transport times, especially for perishable goods.



Zero Energy Cool Chamber (ZECC)



A Zero Energy Cool Chamber is a passive cooling system that uses the principles of evaporative cooling to maintain low temperatures without the need for electricity. ZECCs typically use natural materials such as clay, sand, or other heat-absorbing materials.

These materials help to cool the air inside the chamber by drawing in cool air from underground or through passive ventilation, helping to maintain a temperature that is lower than the surrounding environment. This method is most effective in warm climates.

Benefits:

- No electricity required, making it cost-effective and sustainable.
- Suitable for rural or off-grid areas.
- Maintains freshness of fruits and vegetables without using harmful refrigerants



Striation in Fruits and Vegetables

Striation refers to the physical pattern or changes in the color, texture, or structure of fruits and vegetables that can occur due to storage conditions, especially temperature fluctuations.



Temperature stress, over-ripening, or improper humidity levels can lead to striation in certain produce, affecting its quality. For example, improper cooling can cause tomatoes or cucumbers to develop stress cracks or color changes that are visually unappealing.

Benefits of Avoiding Striation:

- Maintains the aesthetic appeal of fruits and vegetables.
- Preserves texture, taste, and overall freshness.
- Reduces food waste caused by visually unappealing products



Thank You