

Methods of processing and storage of Fruits and vegetables



Dr. NIU - Liying

Institute of Farm Product processing, Jiangsu Academy of
Agricultural Sciences, Nanjing, China



Contents

- 1 Environmental Control**.....●
- 2 Chemicals and Biological preservation**.....●
- 3 Radiation**.....●
- 4 Processing**.....●



Environmental Control

❖ Temperature and Humidity

0 to 2° C, 90-95% , apple pear

0 to 2° C, 95-100%, kiwifruit mushrooms.

0 to 2° C, 65-75%, Garlic Onion.

10° C, 85-90%, bean pepper.

13-15° C, 85-90% ,avocados and pumpkin.

18 to 21° C, 85-90% , Sweet potatoes and watermelon

❖ **Atmosphere** Reducing the O₂-level and increasing the CO₂-level is the modification process generally used in Modified Atmosphere Packaging (MAP).



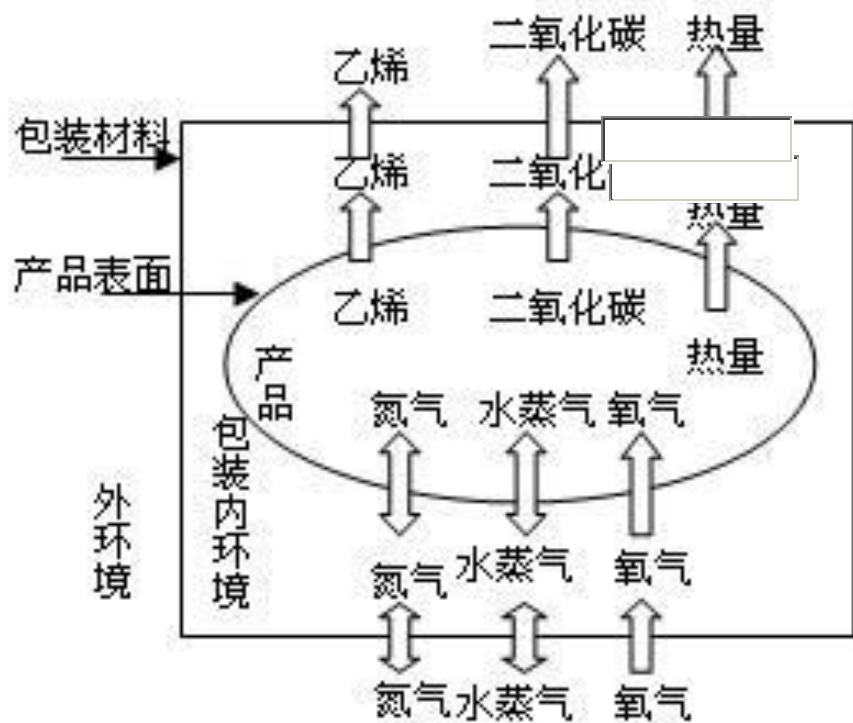


图1 薄膜气调包装系统模型





Chemicals and Biological preservation

Chemicals

- ❖ Preservatives (e.g., sulphur dioxide, benzoic acid and sorbic acid)
- ❖ 1-methylcyclopropene (1-MCP)

Biological

- ❖ Edible coatings Chitosan
- ❖ Yeast *Metschnikowia pulcherrima*



❖ Radiation

gamma rays, β -rays, X-rays, ultraviolet (UV), visible and infra-red light, microwaves and other ionizing radiation or electron beams



0.5kCy ^{60}Co γ -ray on strawberry
kept in low-temperature,
the decay coefficient is 70% lower
during 15 days.



Processing

- ❖ Frozen
- ❖ Dried fruits
- ❖ Juice
- ❖ Solid or semisolid Preserves in a container and sterilized 罐头 (purees, jams, jelly, marmalade, conserves, pickles and chutneys)
- ❖ Fruit leathers (dried fruit pulp).





Frozen

broccoli



cowpea



pea



raspberry



the core of the product will reach -18 °C within 2-3 minutes



Drying



Hot air

Microwave

Infrare

Vacuum

Spray



烟台北方安德利果汁股份有限公司
Yantai North Andre Juice Company Limited



Professional Concentrated
Juice Manufacturer
专业浓缩果汁生产商

年产浓缩果汁、果浆、香精30万吨，
产品的出口比例约占80%



waxberry



M. rubra



From Concentrate
NFC



重庆派森百橙汁有限公司
Chongqing Paisenbai Orange Juice Company Limited





Thank You !

江苏省农业科学院农产品加工所

Institute of Farm Product processing, Jiangsu
Academy of Agricultural Sciences, Nanjing, China