Quadrant II – Notes

Programme: B. Sc. (Hons.) Agri.

Subject: Horticulture

Course Code: HORT- 366

Course Title: Post Harvest Management and value addition of Fruits and Vegetables

Module Name: Canning -– Concepts and Standards

Module No: 15

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Notes :

Canning -– Concepts and Standards

- Canning is the preservation of food in permanent, hermetically sealed containers for prevention of spoilage
- Heating is the principle factor to destroy the microorganisms and the permanent sealing is to prevent reinfection.

Good containers for canned foods

- Capable of being hermetically sealed to prevent entry of microorganisms
- Impermeable to liquids and gases
- Maintain the state of biological stability
- Withstand the physically damage during transportation, storage and distribution
- Steel, aluminum, Plastic, glass containers and metal closures

Process of canning

- Sorting: damaged F&V
- Grading: machine grading
- Washing running water, vegetables in Potassium permanganate or 150 ppm chlorinated water
- Peeling, coring and pitting; manually or mechanically, hot or lye solution for peeling
- Blanching: exposed to hot water or air for short time and cooling to remove air and gases and inactivating enzymes
- Filling: 60% filling capacity of can
- Syruping or brining: syrup of 10-55oB, citric acid or 1.5-2.25% salt, 2.5% sugar
- Choice based sweeteners, thickeners, starches can be added
- Lidding: double seamer
- Exhausting: expose cans to live heat 74-77oC, ensures head space that avoids bulging
- Sealing: double seamer closings

Specification and Standards of some products

Fruit	Can type	Strength TSS oB	Exhaust	Processing time
Apple	Plain	Syrup 40	82-100oc for 7-20 min	10-25 min
Mango	Plain	Syrup 40	82-100oc for 7-20 min	10- 30min
Guava	Plain	Syrup	82-100oc for 7-20 min	10-15 min
Asparagus	Plain	2.25 salt	90-100oc for 7-20 min	10-25 min
Carrot	Plain	2.25 salt	90-100oc for 7-10 min	20-60 min
Potato	Plain	2 salt	90-100oc for 7-10 min	40-45 min

Spoilage of canned products

- Swell: slightly bulged due to the formation of gas
- Hydrogen Swell: This is caused to the formation of hydrogen and is followed by internal corrosion of the can
- Springer: bulged and on pressing or pushing, the other end bulges in the places of previous
- Flipper: mild positive pressure resulted inside the can due to overfilling or under exhausting
- Flat Sour: Production of gas resulting in flat sour due to presence of higher acidity than normal one
- Leaker: leaks any part
- Breather: An air may pass in and out due to presence of small leak.
- Bursting of Cans: sulphur di-oxide
- Discolouration of Products: due to action of acids on tin plate

Canned products should have these parameters

1. Good quality tin plate
2. Citric acid up to 0.5 should be added to syrup
3. Use of fruits of low acidity
4. Seal the cans when hot (temperature 165 oF)
5. Leave the proper head space
6. Cans should be stored under cool and dry conditions

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