

20FT015 - SPICES AND PLANTATION CROP PROCESS TECHNOLOGY

Hours Per Week :

| L | T | P | C |
|---|---|---|---|
| 3 | 1 | - | 4 |

Total Hours :

| L | T | P |
|----|----|---|
| 45 | 15 | - |

| WA/RA | SSH/HSB | CS | SA | S | BS |
|-------|---------|----|----|---|----|
| 15 | 30 | - | 4 | 5 | - |

Course Description and Objectives:

This course deals with processing, packaging and storage of different types of spices and condiments. The objective of this course is to enlighten the students aware of various techniques involved in processing of spices and condiments, their value addition.

Course Outcomes:

Upon successful completion of this course student should be able to:

- Understand scope, processing and production of spices and plantation crops
- Know about processing methods for value addition of spices and condiments
- Discuss standards, adulteration and packaging of spices and condiments

SKILLS:

- Analyse the chemical composition of spices and plantation crops
- Explore technology for extraction of essential oils from different spices
- Identify a suitable packaging material for spice products
- Detect adulteration in spice and plantation crops

ACTIVITY:

Flow chart of processing of local value added products of spices and condiments

UNIT - I

Plantation Crops - Description of various types of Plantation crops, viz., coconut, arecanut, coffee, tea, cocoa etc. Differences between plantation crops vs. fruit crops processing and preservation methods. Commercialization of plantations and value-added products shelf- stable products viz., coconut water bottling, desiccated coconut powder, coffee concentrate, instant coffee powder, instant tea powder, cocoa processing, their composition, nutritive value, health benefits. Leafy vegetables - Description of various types of leafy vegetables, viz., hibiscus, curry leaves, coriander leaves, etc. Their composition, nutritive value, health benefits. Preservation methods and packaging techniques.

UNIT - II

Spices & Condiments - Definition and classification of spices and condiments; global trade scenario; Description of various types of spices and condiments, their composition, functional properties, flavoring agents. Nutritive value of spices and their health benefits. Intermediate Moisture Products – Intermediate Moisture Products viz., ginger paste, ginger –garlic paste, tamarind paste, tamarind concentrate. Their importance in culinary preparations. Challenges in spices and condiments production, processing and trade.

UNIT - III

Spice Powders & Curry Powders: Their importance in culinary preparations, their preparation methods, grinding and packaging methods for spice powders like chili powder, turmeric powder, ginger powder, garlic powder; and Masala Powders for chicken masala, meat masala, biryani masala, chat masala etc. Importance of Cryogenic grinding of spices. Spice Oils – Concept and importance of spice oils from spices like and condiments like clove, cardamom, cinnamon etc. Their application in food processing, and extraction methods of spice oils by various techniques, viz., solvent extraction, steam distillation etc. Advantages and disadvantages of various different.

UNIT - IV

Extraction of Oleoresins – Concept and importance of oleoresins in food processing, processing of spices like chili, turmeric, pepper, ginger etc. for solvent extraction of Oleoresins technology, desolventization methods, regulatory and statutory requirements for oleoresin processing. Extraction and analysis of active components using TLC, HPLC, GC. Extraction of Natural Food Colours - Extraction of Natural Food colours from paprika, turmeric, blue grapes, beet root etc. Their importance in food processing.

UNIT - V

Herbs – Definition and Description of various types of herbs, viz., Basil, Chives, Cilantro, Dill, Coriander, Mint, Oregano, Parsely, Chives, Vanilla Borage and Avocado leaves, Rose marry,

Saga, Tarragon, Thyme, Winter savory and bolbo leaves, Papalo, Pipicha and Safflower. Processing and value addition of these herbs. Their nutritive value & health benefits, their processing and Post-harvest handling. Packaging methods for processed products.

TEXT BOOKS:

1. K. G. Shanmugavelu, "Spices and Plantation Crops", 1st edition, Oxford and IBH Publishing Co., 1979. 2. S.
2. Gupta, "Hand Book of Spices and Packaging with Formulae", 2nd edition, Engineers India Research Institute, 2002.

REFERENCE BOOKS:

1. D. K. Salunkhe and S. S. Kadam, "Handbook of Fruit Science and Technology: Production, Composition, Storage, and Processing", 1st edition, CRC Press, 1995.
2. N. K. Jain, "Global Advances in Tea Science", 1st edition, Aravali Books International, 1999.
3. M. N. Clifford and K. C. Willson, "Coffee: Botany, Biochemistry and Production of Beans and Beverage", 1st edition, AVI publishing Co., 1985.