RAMA UNIVERSITY

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FACULTY OF AGRICULTURE SCIENCES AND ALLIED INDUSTRIES

Unit I

For

B.Sc. Ag (Third Year)

Course Instructor

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FASAI(Horticulture)

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LECTURE 17. PRESERVATIVES, COLOURS PERMITTED AND PROHIBITED IN INDIA

PRESERVATIVES

Any substance which is capable of inhibiting, retarding or arresting the growth of microorganisms is known as a preservative.

- It may be a chemical or a natural substance (sugar, salt, acid).
- The term preservative includes fumigants, e.g., ethylene oxide and ethyl formate, used to control microorganisms on spices, nut and dried fruits.

Classification of preservatives

- Class I
  - Common salt, Sugar ,Dextrose, Glucose ,Wood smoke, Spices, Vinegar, Honey
- Class II
  - Benzoic acid, sulphurous acid
  - Nitrates / nitrites of sodium/ potassium in respect of foods like ham, pickled meat.
  - Sorbic acid- sodium, potassium & calcium salts
  - Nisin
  - Sodium and calcium propionate

Permissible limits of Class II preservatives in food products (FPO)

Sulphurdioxide

1.	Fruit pulp	-	2000-3000 ppm SO_2
2.	Fruit juice concentrate	-	1500 ppm SO_2
3.	Dried fruits viz., apples, peaches pears and other fruits	-	2000 ppm SO_2
4.	Raisins	-	750 ppm SO_2
5.	Squashes, cordials, crushes, fruit syrups and fruit juices	-	700 ppm of KMS
6.	Jam, marmalade, preserve	-	40 ppm SO_2
7.	Crystallizedand glazed fruits	-	150 ppm SO_2
8.	RTS	-	70 ppm
9.	Pickles and chutneys	-	100 ppm SO_2
10.	Dehydrated vegetables	-	2000 ppm SO_2
11.	Syrups and sherbets	-	350 ppm SO_2
12.	Wines	-	450 ppm SO_2

Benzoic acid

1.	Squashes, crushes fruit, syrups, cordials	-	600 ppm
2.	Jam, jelly, marmalade	-	200 ppm
3.	Pickles and chutneys	-	250 ppm
4.	Tomato and other sauces	-	750 ppm
5.	Tomato puree and pasta	-	250 ppm

COLOURS

Permitted Natural Food Colours (FPO-1995)

These are isolated from the natural sources/synthesized.

- Cochineal
- Carotene
- Chlorophyll
- Lactoflavin
- Caramel
- Annatto
- Ratanjot
- Saffron
- Curcumin

Synthetic colours

Permitted synthetic food colours (FPO-1995)

- Dye should be pure & free from all harmful impurities.
- Should be in high solubility.
- Acid dyes generally more stable than alkaline ones.
- Sunlight, oxidation, reduction by metals & microorganisms affect dyes.
- Degrade by thermal processing.
- Colour should not contain more than

Copper	- 10 ppm
Chromium	- 20 ppm
Arsenic	- 1 ppm
Lead	- 10 ppm

- Available in the form of powder / ready-to-use solutions.
- Prevent sedimentation – glycerine is added to the solution to increase density.
- Permitted level in fruit products – 0.2 /kg
- Synthetic colour preserved by addition of

- Alcohol - 10%
- Glyerine - 25%
- Citric acid - 12.1%
- Tartaric acid - 15.6 %

Approved coal tar dyes			
Colour	**Common name**	**Colour index**	**Chemical class**
Red	Ponceau 4R	16255	Azo
	Carmoisine	14720	Azo
	Fast Red	16045	Azo
Yellow	Tartrazine	19140	Pyrazolone
	Sunset yellow FCF	15985	Azo
Blue	Indico carmine	73015	Indigoid
	Brilliant blue FCF	42090	Triphenylmethane
greem	Fast green	44090	Triphenylmethane
	Green FCFs	42053	Triphenylmethane

Banned colours (Public Health Regulations, 1925)

Metallic colours

Antimony, arsenic, cadmium, chromium, copper, mercury, lead & zinc.

Vegetable colouring matter

Gamboge.

Coal tar colours

Picric acid, victoria yellow, manchester yellow, aurantia & aurine.

Other colour

Magetna-II & blue V.R.S, red 6B, Red FB & brilliant black.