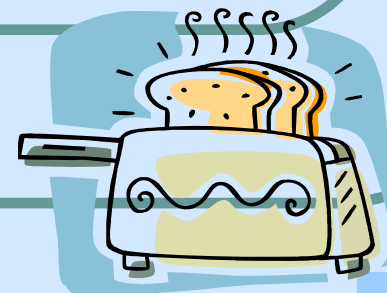


Food Safety (level 3)

Food Additives FS0724

Prepared by
Dr. Mahmoud H. Mohamed **Dr. Galal A. Ghazal**



Flavouring Agents

- Preservatives
- Flavouring Agents →
- Colouring Agents
- Emulsifiers, Stabilizers and Thickeners
- Nutrients
- Antioxidants
- Harmful Effects of Food Additives
- Monitoring of Use of Food Additives

- Spices
- Monosodium Glutamate
- Esters
- Saccharin
- Artificial Flavouring
- Common food Flavouring

FOOD FLAVOURINGS

WHY USE FOOD FLAVOURINGS?

Flavourings are added to food for the following purposes:

- To enhance flavour of food
- To restore the original flavour which may be lost during food processing
- To add flavour to foods which are tasteless themselves (e.g. ice cream, jelly)

Flavor enhancers:



- Taste is a complex mixture of flavors and aroma .
Flavourings are added to food products to give or intensify flavour.

Eg: monosodium glutamate – is the sodium salt of the aminoacid glutamic acid and a form of glutamate



Flavourings (No E numbers)

Classes	Examples	Use	Origin	Functions
Natural	Sugar Salt Spices Herbs	Jam, tinned beans, cereals. Cheese, butter, convenience fds Meat products, sauces, stock cubes	Cane, beet, fruit Sodium chloride Rock or sea Root, seeds and leaves of plants	<ul style="list-style-type: none"> • To add flavour to food • To replace flavour lost in processing.
Artificial	Ethyl acetate Amyl acetate Benzaldehyde Maltol	Rum flavour Pear flavour Cherry flavour Fresh baked smell	Chemical rxn. heating acetic acid and ethyl alcohol Tree Bark	<ul style="list-style-type: none"> • To enhance food flavour
Flavour Enhancers E600-699	Monosodium Glutamate E621	Chinese food, soup, sauces, stock cubes	Glutamic acid an amino acid	

Spices

- *Cinnamon* and *ginger* are examples of natural spices
- Chemicals which stimulate our taste buds
- Commonly used in chicken broth, oyster sauce, soup bases for instant noodles, many fast foods and restaurants dishes.



Monosodium Glutamate (MSG)

- ✚ Does not add any taste to food
- ✚ But is a flavour enhancer. It can bring out the flavour of food, particularly meat products
- ✚ Commonly used in chicken broth, oyster sauce, soup bases for instant noodles and dim sums(點心).



■ Side Effects of MSG



Flavor enhancers:



Monosodium glutamate is found in **restaurant food** , soups, chips, **salad dressings** , frozen foods, sauces , **instant meals**



Monosodium glutamate:



Side effects :

- headache , weakness, nausea , altered heart rate, a burning sensation in the forearms and back of the neck ,tightness in the chest.
- **Neoantal exposure is linked to stunted growth and obesity – due to reduction in release of GH.**



Artificial Flavouring

- ✚ Although flavourings can be extracted from natural sources, the demand for flavouring in the food industry has outstripped the supply. Therefore, artificial flavours are being produced.
- ✚ Artificial flavouring are closely resembles the natural product.



Common food Flavouring

Flavour	中文	Food Additive
Camphor	樟腦	Bornyl acetate
Cinnamon	桂皮	Cinnamaldehyde
Ginger	薑	Ginger oil
Grape	葡萄	Methyl anthranilate
Lemon	檸檬	Citral
Orange	橙	Orange oil
Pear	梨	Amyl butyrate
Peppermint	胡椒薄荷	Menthol
Rum	朗姆酒	Ethyl formate
Spearmint	留蘭香	Carvone
Spicy	辛辣	Ethyl cinnamate
Vanilla	香子蘭	Ethyl vanillin
Wintergreen		Methyl salicylate



Colouring Agents

- Preservatives
- Flavouring Agents
- Colouring Agents →
- Emulsifiers, Stabilizers and Thickeners
- Nutrients
- Antioxidants
- Harmful Effects of Food Additives
- Monitoring of Use of Food Additives

- Natural Colourings
- Synthetic Colourings

FOOD COLOURINGS

WHY USE FOOD COLOURINGS?

Food colourings are dyes. They are added to food for the following purposes:

- **To give food an attractive colour, so as to make it more appetizing and more saleable.**
- **To restore the original colour which may be changed or lost during food processing or storage.**
- **To ensure colour consistency.**

Natural Colourings

☀ *Caramel*

- Brown colouring
- Used in oyster sauce

☀ *Carotene*

- Yellow dye present in carrots
- Used to colour butter and margarine

☀ *Chlorophyll*

- Green dye extracted from plants
- Used to colour edible oils



Synthetic Colourings

- ✧ *Indigo carmine*
 - Purple blue dye combination with yellow colouring
 - Used for confectionery, candies and liqueurs
- ✧ *Tartrazine*
 - Yellow dye
 - Used in Pudding Powders, candies, ice-cream and pop drinks
- ✧ *Sunset Yellow*
 - Orange dye
 - Used in candies, honey-like products, sea salmons and crabs(蟹)



Colourings: E100-E199

Class	Examples	Use	Origin	Functions
Natural	Chlorophyll (E140) Carotene Cochineal (E120) Caramel	Tinned veg Soft drinks Red jelly Brown sauce, gravy	Plants Carrots Cactus insects Heated carbs.- Caramelisation	<ul style="list-style-type: none"> • Improve appearance of food • To replace colour lost in processing. • To satisfy consumer expectations. • To give colour to food that would be colourless
Synthetic Artificial	Tartrazine - Yellow (E120) Red (E128) Green (E142) Amaranth - purpley-red (E123)	Soft drinks Sausages Sweets Blackcurrant products	All made from coal tar	

Colourings are not permitted in **fresh meat, fish, poultry, fruit, veg or baby food.**

Colour additives:

Erythrosine (Red No.3) – cherries in fruit cocktail and in **canned fruits** for salads, **baked foods**, dairy products, snack foods



Side effects: cancer



Tartrazine (yellow No. 5)- **ice cream** , carbonated drinks , fish sticks, cake mixes , **squashes**



Side effects: hyperactivity , asthma , skin rashes, and migraine



Allura red - carbonated drinks , bubble gum, sauces , soups , wine



Side effects: may worsen or induce asthma , rhinitis, urticaris(hives)



Brilliant blue –dairy products , sweets



Side effects:

- hyperactivity and skin rashes .
- Listed as human carcinogen.
- Causes DNA damage and tumours in animals.

