

# Food Adulteration:

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# Definition:

- Food adulteration is an act of intentionally debasing the quality of food Offered for sale by either the admixture or substitution of inferior substances or by the removal of some valuable ingredient

- ◉ An adulterant is a chemical substance which should not be contained within other substance.
- ◉ The addition, replacement and removal of adulterant/other ingredient is called adulteration
- ◉ Food additives are not adulterants, if present within the specific limits

- ◉ Food adulterations are chemical substance added to processed foods
- ◉ (i) to enhance /retain quality attributes such as texture, physical properties, taste, flavour etc.
- ◉ (ii) to control the spoilage and enhance shelf life of the processed
- ◉

- Adulterated food is dangerous as it may be toxic and effect health, it could deprive nutrients required to maintain proper health and it may cause intoxication or problems such as allergy in sensitized individuals.

- Among these the bacterial contaminants, environmental contaminants including pesticide residues, mycotoxins and adulterants have been reported to be responsible for causing large-scale outbreaks of food poisoning and smaller incidents.

- These include various “food poisonings” reported in newspapers in India from time to time, outbreaks of Lathyrism, epidemic dropsy, venoocclusive disease, various mycotoxicoses and food borne disease due to chemical toxins

# Types of adulteration:

- 1. Intentional adulterants:
- Intentional adulterants are sand, marble chips, stone, mud, chalk powder, water, mineral oil and coal tar dyes. This adulteration cause harmful effects on the body.

- ② 2. Metallic contamination:
- ② Metallic contaminations include arsenic from pesticides, lead from water, and mercury from effluents of chemical industries, tin from cans etc.

# Common Food Adulteration in different food commodities.

- **Food stuff**

Milk , skim milk,

- **Adulterants :**

neutralizers, calcium hydroxide, sodium

bicarbonate/carbonate, sodium

pyrophosphate, urea, Vanaspati,

Starch, Detergent, invert sugar/glucose,

synthetic milk,

ammonium sulphate, hydrogen peroxide,  
boric acid, removal of  
fat, sodium chloride, melamine (resin).

● **Health Hazard :**

Indigestion, kidney stone and renal failure  
in children, Cancer or acute renal failure

# Ghee

- ◉ **Adulterants**

Vegetable oil, cheaper animal fat

- ◉ **Health Hazard**

Cancer or acute renal failure

# Edible oil (vegetable oil )

## ● Adulterants

Cheaper oil, linseed in mustard oil, coconut oil with ghee, argemone Mexicana oil, white mineral oil, prohibited colour, castor oil, mineral oil, Karanja oil, Neem oil.

## ● Health Hazard

Erythema, epidemic dropsy, hepatitis odema (skin and liver disease, Loss of Vision and Heart Diseases

# Vanaspati

- **Adulterants**

Cheaper fat ,groundnut, cottonseed and linseed oil

- **Health Hazard**

Loss of Vision and Heart diseases

# Coffee powder

- **Adulterants**

roasted powder of wheat gram, date seed, chicory and tamarind husk,

- **Health Hazard**

Diarrhea, stomach disorders, giddiness

# Tea dust leaves

## ◉ Adulterants

Artificial colour, tea wastes, gram husk, by product of leather industry, tamarind seed powder, sawdust, exhausted tea, chicory powder, iron filling

## ◉ Health Hazard

Cancerous, tetanus, Appendicitis and Small Intestine problems.

# Chilies powder

- **Adulterants**

Sawdust, brick powder, non permitted colour (sudan dye), salt, talc powder

- **Health Hazard**

Toxic Stomach disorder, Carcinogenic, Loss of Vision and Respiratory diseases

# Turmeric powder

## ◉ Adulterants

lead chromate, foreign starch, common salt, husks, earthy matter, Metanil Yellow, Other aniline dyes (Non permitted colour)

## ◉ Health Hazard

Carcinogenic, anemia, abortion, paralysis, brain damage

Dal whole and spilt pulses (Food grains), (bajra), khesari dal,

● **Adulterants**

Dust, pebble, stone, straw, weed seeds, damaged grain, weevilled grain, hidden insects, rodent hair & excreta, kernel bunt, ergot, clay, gravels, webs, non-permitted colour

## ◎ **Health Hazard**

Toxic, Incurable paralysis, tumor and cancer, Anaemia, Epilepsy, Neurotoxicity

# Maida, suji (rawa)

## ◉ Adulterants

Resultant Atta, cheaper flour, boric acid, sand, soil, insects, webs, lumps, iron fillings, rodent hair and excreta, excess bran, chalk powder,

## ◉ Health Hazard

Abdominal pain

# Asafoetida

- **Adulterants**

Soap stoner, or other earthy material, starch, foreign resin, Other resin Colophon residue obtained after the distillation of turpentine oil.

- **Health Hazard**

Abdominal pain

# Jaggery

- **Adulterants**

Chalk powder, sugar solution, sodium carbonate, washing soda, non permitted colour.

- **Health Hazard**

Abdominal pain, Stomach disorder,

# Iodized salt Common salt,

- **Adulterants**

white powdered

- **Health Hazard**

Abdominal pain, Stomach  
disorder, Appendicitis

# Black pepper

- ◉ **Adulterants**

Papaya seeds, light black pepper, coated with mineral oil, black pinheads

- ◉ **Health Hazard**

liver problems and stomach disorders

# Honey

- ◉ **Adulterants**

High Fructose corn syrup, sucrose, invert sugar, cane sugar solution, starch, glucose, wax, water.

- ◉ **Health Hazard**

Obesity, Diabetes , Eyes and nerve damages

- It is found that there are various chemicals and colours used in fruits and vegetables can prove disastrous for digestive system, eyes and liver which also results in vomiting and diarrhea in children, kidney failure.

- ◉ Chemicals such as Calcium carbide used in mangoes, bananas,
- ◉ copper sulphate used to ripen fruits faster and
- ◉ oxytocin a hormone used for faster growth of Pumpkin, watermelon, brinjal, gourds, cucumber can lead to brain damage,

- ◉ Wax adds shine on apples and pears.
- ◉ Cheap green colours containing chemicals such as metallic lead applied to bitter gourd and leafy vegetables to give fresh colour.

# FSSAI (Food Safety and Standards Authority of India)

- Establishment of food safety policy of FSSAI (Food Safety and Standards Authority of India) provides guidance to the appropriate level of protection and the scope of the food safety

◎ THANK YOU