



Adulteration of Food: Reasons and Types for Competitive Exams

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(In news: Use of formaldehyde in fish preservation.)

"Good food is a right, not a privilege."

- Alice Waters

Food, water and air constitute the basic necessity for any life to survive on the earth. But, today majority of the diseases has its roots in the food we consume.

What is Adulteration?

Adulteration of food can be defined as 'the addition or removal of something from the food that deteriorates the food quality and make the food unfit for consumption'. The FSS Act 2006 categorizes substandard, unsafe and low quality food as adulterated. The materials which are added to alter the food properties are called adulterants.

Or in other words, adulteration occurs when:

- The food is contaminated by the addition of external substance.
- The food item is substituted by an inferior substance (wholly or partially).
- The food is subjected to removal of valuable ingredients.

Types of Adulteration

The common food items prone to adulteration are milk, edible oils, spices, seafood, grain flours, etc.

Adulteration can be of the following types.

- Intentional adulteration:
 - *Economic adulteration*: Food items are substituted with low quality materials to increase the weight and hence add economic profit (coconut oil is mixed with tree oil). Colors are added to food items to make it look appealing (lead chromate in turmeric).
 - *Filth and foreign matter*: Food items are mixed with unsafe matter like powdered brick, sand, glass pieces, and many more. This is normally done to increase the weight of the item (glass pieces in sugar).
 - *Preservatives*: The preservatives which are used to increase the shelf life of food can also act as adulterants when they get mixed with the food and degrade its quality (formaldehyde in fish, injection of hormones to increase shelf life).

- Unintentional adulteration:
 - *Metallic impurities and fertilizers*: These impurities enter the food chain through the soil. This can even be spotted in seafood when water is polluted (presence of lead in seafood).
 - *Pesticides and other poisonous substance*: The pesticides and insecticides used by the farmers often get mixed with food while processing and thus enter the human body.

How to Detect?

Adulteration in everyday foods can be easily spotted by the following methods (proposed by FSSAI). Some of them are:

- Adulterant in coconut oil floats over when it is refrigerated for 230 mins.
- Adulterated salt can be detected by pouring lemon juice over salt sprinkled potato.
- Iron fillings in flour can be removed by exposing it to a magnet.
- Clay or mud in coffee powder can be removed by mixing it with water. Clay settles down at the bottom.
- Colored food items can be easily detected by soaking it in water.

How to Prevent?

The government has adopted many measures to address the problem of food safety. Some of them are:

- *Prevention of Food Adulteration (PFA) program* was introduced by the government to prevent adulteration of food. The main goal of this act is to make sure that the consumers get safe food.
- *The Food Quality Control* is another 3-tier government body which works at the central, state and district levels to ensure food safety and make sure that the consumer gets unadulterated food.
- *Food Safety Standards Act, 2006* was passed by the government. After this legislation came into effect the Prevention of Food Adulteration Act, 1954 stands revoked. However the standards, safety requirements and other provisions of the Act and the rules and regulations made under the Prevention of Food Adulteration Act are still followed by this act.

Despite the various laws enforced by the government, food safety continues to be a major concern for the consumers. Food adulteration is a global problem and cannot be addressed in a single go. Food quality refers not only to end product parameters, but also to process control. Hence, rather than focussing on the quality of end products alone, close supervision should be enforced even from the initial stage of cultivation to processing and packing. Consumers must be made aware of their rights and must make proper use of it. Regular quality checks are

to be performed by the 'quality assurance' systems of the government. It is always important to remember that,

"A healthy mind resides in a healthy body".

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