

SWASTHAVRITTA –AN APPROACH TO FOOD ADULTERATION

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ABSTRACT

Food is one of the cherisher, nourisher and sustainer of a beautiful life. In the present era when everything is seen as a profit or loss statement, the food we eat has been affected to a marked extent. Adulteration is accidental or intentional addition of any substance to a food item in order to increase the quantity in raw or prepared form, which may result in the loss of actual quality of them. Adulterant is a material which is employed for the purpose of adulteration and the health hazards of adulterated food may range from simple malnutrition to grievous cancer. Food acts as an important vehicle for transmission of the diseases, due to its contamination at any point. An adequately hygienic food is necessary for maintaining the wealth, vitality and wellbeing of an individual. Food adulteration is a social evil. This is done by the traders because of their greed for money. The common adulterant of food materials of cereals are stones, sand, grit and those of black pepper are dried seeds of papaya. There are certain disadvantages for the consumer such as he has to pay more money for a food stuff which is of lower quality and also at a risk of ill health. There are certain tests for adulterants like physical and chemical. Prevention and control of food adulteration can be done by standard foods and legal measures. Codex alimentarius commission (CAC) is a principle of the joint FAO/WHO Food standards Program. This has formulated food standards for the international market. Prevention of food adulteration act with the objective of ensuring pure and wholesome quality food to the consumers, to protect their health from fraudulent practices of traders.

Keywords: *Ahara*, Food, Food adulteration, Food safety, Adulterants.

INTRODUCTION

Food is one among the *trayopsthambha*¹ and basic necessities of life along with air and water. Food is the source of energy for the nourishment of all living beings. The human body is designed in such a way that it is perfectly in tune with the events occurring in the environment. If a person who does not live according to the rules of nature brings calamity upon

himself in the form of various aspects in his system. Hence the right diet and regimen are essential components for the right lifestyle.

Now a day's adulteration of food stuffs is commonly practiced in India by the trade. When the price of the food production is higher than the price which the

consumer is prepared to pay and seller is compelled to supply a food stuffs of inferior quality. Thus adulteration occurs². Adulteration is one of the biggest problems facing in present time. The food articles like milk and milk products, vegetable oil and fats, spices and condiments, beverages like coffee, tea are adulterated from many ways. These food articles are used common by consumers in their daily life. Adulterants of food articles not only decrease the quality of food articles, but if we consume these adulterated food articles daily may have adverse effects on consumer's health. Adulteration causes many diseases like cancer, cardiac failure, kidney diseases and nervous system related disease. Many efforts or rules have been taken by the Government but still the situation is alive. When the consumer pays more money for food stuffs, of lower quality leads to a risk of ill- health to various dangerous diseases epidemic dropsy, allergy, gastritis etc. Hence an attempt has been made to understand the perspective of food adulteration and find ways of effective management of health hazards.

AIM

The objective is to bring awareness to the public regarding available safe food, pure, wholesome and nutritious food and to prevent, control the food adulteration by the food laws.

FOOD ADULTERATION

Adulteration is defined as the large number of practices such as mixing, substitution, removal, concealing the quality, selling decomposed products, misbranding (giving false labels), addition of toxicants, etc. Food adulteration is a social evil. This is done by the traders because of their greed for money, in order to protect the health of the consumer. The

Govt. of India included the “Prevention of Food Adulteration Act” (P.F.A) in 1954. However provision is made under this act for enrichment and fortification of foods³.

An article of food shall be deemed to be adulterated;

- a. If the food article contains any other substance so as to affect injuriously the nature or quality.
- b. If the constituent of the article is abstracted partially or wholly, as to affect its quality.
- c. If it is substituted wholly or partially by an inferior substance.
- d. If the article has been prepared, packed, or kept under insanitary conditions and has become contaminated as to cause injury to the health.
- e. If the quality of the article falls below the prescribed limits.

It's the presence in the food are dangerous for the health of consumer in other word the substance that degrades or lowers the quality of food is an adulterant. Adulteration may be intentional. The former is a willful act on the part of the adulterator intended to increase the margin of profit of incidental contamination occurs usually due to ignorance, negligence or lack of proper facilities.

DIFFERENT TYPES OF FOOD ADULTERATION

- Intentional: Sand, marble chips, stones, mud, talc, chalk powder, water, mineral oil.
- Incidental: Pesticide residues tin from can, droppings from rodents, larvae in foods.
- Metallic contamination: Arsenic from pesticides, mercury from chemical industries.
- Packaging hazards: Polyethylene, polyvinyl chloride used to produce flexible packaging material.

Some common adulterants and diseases⁴:

S.NO.	Name of the food product	Common Adulterants	Disease caused
1.	Black pepper	Dried papaya seeds	Stomach, liver damage
2.	Bengal gram, Thoor-dal	Yellow dye, kesari dal	Lathyrism, cancer
3.	Cereals	Stone pieces, mud	Stomach disorder

4.	Pulses-green peas, dal	Coaltar dye	Ulcer, stomach ache
5.	Butter, ghee	Starch, Vanaspati ghee	Food poisoning
6.	Milk	Water, starch, fatless milk	Stomach disorder
7.	Sweet, juices, jam	Metanil yellow	Caricnogenic
8.	Chilly powder	Brick powder	Stomach irritation
9.	Sugar	Chalk powder	Stomach disorder
10.	Coffee powder	Chicory	Deprives nutritional value

Criteria for selection of food⁵:

- Selection of wholesome and non- adulterated food is essential for daily life to make sure that such foods don't cause any health hazard.
- Visual examination of the food before purchase makes sure to ensure absence of insects, fungus, foreign matters etc. So consumer should purchase the food thoroughly after proper examination.
- Label declaration of packed food is very important for knowing the ingredients and nutritional value. It also helps in checking the freshness of the food and the period of best before use.
- The consumer should avoid taking food from an unhygienic place and food being prepared under unhygienic conditions.
- Consumer of cut fruits being sold in unhygienic conditions should be avoided. It is always better to buy certified food from reputed shop.

PREVENTION AND CONTROL OF FOOD ADULTERATION:

The prevention of adulteration of food is the best way to maintain the health. Food adulteration can not only be a result of need for quick profit but also can result from shortages and increased prices, consumer demand for variety in food, lack of awareness, negligence among customers and inadequate enforcement of food laws and food safety measures. It can be adulterant as a whole or its consumption can be prevented by proper governing body to ensure food safety, formulation of proper legislation and their implementations, by public awareness about

the common adulterated food, their ill effects and proper testing methods of susceptible food items.

In India the food safety is ensured by the Food Safety and Standards Authority of India (FSSAI) governed by the ministry of Health and Family Welfare. The FSSAI implements and enforces food regulations as prescribed in the food safety and standards act, 2006 (FSS Act). According to the Food Safety and Standards (Licensing and Registration of Food Business) Regulation 2011, it is mandatory for all food businesses operators, manufacturers, wholesalers, retailers, hotels, restaurants, importers, distributors to have an FSSAI registration/license so they are in compliance with FSS Act. Consumers are urged to buy only those foods which have the FSSAI mark on them proving their safety.

The common people can protect themselves from the hazards of adulteration by being conscious of what they buy and eat. Testing foods that are commonly adulterated for their purity before consumption is a very effective way of preventing health hazards. The FSSAI has also brought out some simple tests to be performed to common food items to test for their purity. A few tests are;

a) Physical tests-

- Argemona mexicana seeds (prickly poppy) are black in color but not in uniformly smooth and round.
- Kesari dal is wedge shaped.
- Iron fillings in tea can be separated by using magnet.
- Ergot seeds are lighter than bajra and float on water.

- Sand, gravel, pebbles can be observed and re-moved physically.

b) Chemical tests (for the following adulterants)-

Sl.NO	Food materials	Common adulterants	Tests
1.	Ghee and butter	Vanaspati ghee, starch, potato	*Add a little sugar & HCL to melt sample of ghee or butter, shake it for 5minutes presence of pink colour in aqueous layer indicate vanaspati ghee. *Add 2ml of water in ghee or butter boil, add few drops of iodine solution to it, appearance of blue colour indicate the presence of starch in the sample.
2.	Mustard oil	Argemone oil	5ml oil + conc. HNO ₃ orange/red colour indicate the presence of argemone oil.
3.	Sugar	Washing soda or chalk powder	Sample of sugar add dil.HCl- brisk effervescence indicates presence of washing soda or chalk powder.
4.	Redchilly powder	Brick powder or dyes	Red chilly powder in a beaker + distilled powder + brick powder settle down in the bottom, appearance of red color indicate the presence of dyes.
5.	Pepper	Dried papaya powder	Sample + water= dried papaya, seed floats over the surface of water, pure pepper settles down
6.	Turmeric powder	Yellow chalk powder	Sample turmeric powder + 2ml HCl = brisk effervescences indicate presence of chalk powder.

PRECAUTIONS:

By taking few precautions, we can escape from consuming adulterated products.

1. Take only packed food items of known companies.
2. Buy items from reliable retail shops.
3. Check the ISI mark or Agmark.
4. Buy products of only air tight brands.
5. Avoid craziness for artificially colored sweets and buy only from reputed shops.
6. Do not buy sweets or snacks kept in open.
7. Avoid buying things from street side vendors.

MANAGEMENT:

The management of the harmful effects of food adulteration is dependent on the type of adulterant and period of exposure. Hence steps of management can be done by removal of toxins, prevention of further exposure, management of symptoms and rehabilitative food and lifestyle. Treatment for diseases caused by incompatible food⁶ can be cured by *Shodhana* like *Vamana*, *Virechana* and by *Shamana* methods.

Since the *doshas* are not removed from the body, it is very essential to remove the *doshas* by *Shodhana*. One should be advised to give up the habit of consuming incompatible food and adopting *hitakaraahara* and intake of *rasayana* at regular basis.

Once the toxins are removed, the prevention of further exposure is very important. This can be done by eating food which is standardized and safe. In this view advice of *pathyabhojana* should be given. Eating wholesome food not only prevents further exposure but also acts as an aid to repair the damage done by adulterated food. The *pathyabhojana* concept can also account to the rehabilitative food and lifestyle suggested in the modern concept of food adulteration. Hence selection of unwholesome and non-adulterated food is essential while purchasing for daily healthy life and shows its effects from *rasa* level *dhatu* to *shukradhatu*. It affects all the *dhatu*s which shows its severity of consequences which leads to many systemic disorders. So in order to pre-

vent these disorders one has to take the preliminary step of preventing the intake of unwholesome foods⁷ in day to day life. Both local and branded food stores should be inspected by government bodies. Therefore, public awareness should be created so that people can become careful about buying foods and food articles⁸.

CONCLUSION

Food adulteration has become an alarming problem in the World. For the purpose of financial gain is considered to be one of the major reasons for adulteration and unearned profit by dishonest and greedy businessman by adulterated food articles. This problem is more acute in the developing and under developed countries due to lack of adequate monitoring and law enforcement. The law against adulteration is rarely enforced. But adulteration is fatal crime against society.

Adulteration can be prevented by few alerting steps of our society. Hike of food price of food items should be checked by Government. Though presence of adulterants cannot be ensured by visual examination as toxic contaminants are present in very low level but visual examination before purchase can ensure absence of insects, fungus and other foreign materials. The consumer should avoid buying food from places which do not maintain proper hygiene conditions. If we tend to actively participate in these changes then we can bring about a healthy and good future in upcoming generations.

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