



MediPharm

International Journal of MediPharm Research

ISSN:2395-423X

www.medipharmsai.com

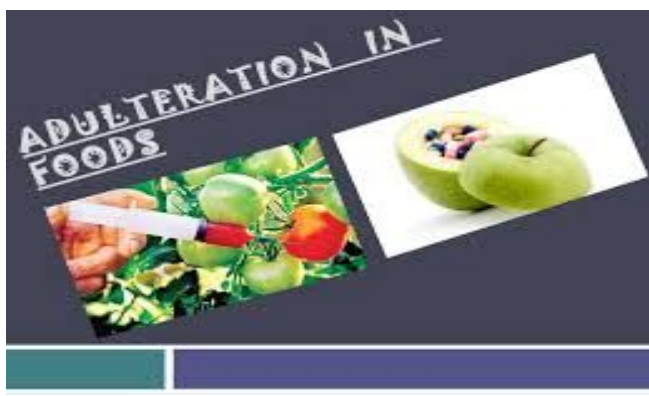
Vol.01, No.03, pp 150-154, 2015

Food adulteration has taken away the joy of life

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Abstract :



In our country, food adulteration is encountered at the household level and food service establishments. Non-permitted colors are the most common additives to foods. Contamination of metals and pesticides in daily foods and milk has been found highly toxic and carcinogenic. In this paper, food adulteration and its harmful effects are emphasized with an objective of prevention of health hazards. It is possible to prevent food adulteration and contamination if people are made aware of health hazards. Though food laws that exist are comparable to international ones, there is very little activity at the ground level to monitor or detect adulterated foods in the market or punish the guilty.

Introduction



Eating habits have been changing rapidly. While traditionally, Indian families used to cook food at home with healthy ingredients and knew what went into the meal, in modern times, with rising incomes more and more people are moving away to readymade fast foods and eating regularly at restaurants. The food in many of these outlets is cooked with poor quality ingredients to attract and satisfy the plate rather than provide a wholesome nutritional meal. We now have a lot more varieties and the choices are many. Though, some of us may not be aware of the fact that the food we consume may be adulterated, 25 to 30 per cent of the food items in India are intentionally adulterated. Of the 1 million cancer cases reported in India every year, 150,000 patients are aged between 15 and 35. Tobacco, alcohol, a hectic lifestyle and food adulteration [1-12] are reasons for the jump in cancer cases.

Many outbreaks of food borne diseases that were once contained within a small community may now take place on global dimensions. Food safety authorities all over the world have acknowledged that ensuring food safety must not only be tackled at the national level but also through closer linkages among food safety authorities at the international level. This is important for exchanging routine information on food safety issues and to have rapid access to information in case of food safety emergencies. It is difficult to estimate the global incidence of food borne disease, but it has been reported that in the year 2000 about 2.1 million people died from diarrhoea disease. Even in industrialized countries, up to 30% of the population of people have been reported to suffer from food borne diseases every year. According to the WHO website, food and waterborne diarrhoeal diseases are leading causes of illness and death in less developed countries, killing approximately 3.8 million people annually, most of whom are children.



Food is adulterated to increase the quantity and make more profit. The food is sucked of its nutrients and the place where the food is grown is often contaminated. For example: Milk is mixed with water. Vanaspati is used as an adulterant for ghee. Chalk-powder is used as an adulterant for flour. Chicory is used as an adulterant for coffee. Papaya seeds is used as an adulterant for pepper. Brick-powder is used as an adulterant for chilly-powder. wood powder is adulterated for turmeric and dhaniya powder.



Food items used in our daily life

In our daily life there are so many unhygienic and contaminated things for our health. Even the food, which we eat, is adulterated. Among man's everyday needs, food plays a major sustaining role. Food adulteration can lead to slow poisoning and various kinds of diseases, which can even result in death. Adulteration makes the food items used in our daily life unsafe and unhygienic for use. An easy example of

food adulteration : Milk is mixed with water. Vanaspati is used as an adulterant for ghee. Ergot is used as an adulterant for cereals. Chalk-powder is used as an adulterant for flour. Chicory is used as an adulterant for coffee. Papaya seeds is used as an adulterant for pepper. Brick-powder is used as an adulterant for chilly-powder. tamarind seed powder is used as adulterant for coffee. wood powder is adulterated for turmeric powder.

Very recently the controversy over the Nestle's Maggi noodles began May 2015, are facing a ban in India after food inspectors found dangerous levels of lead in certain batches of the product. The FDA (Food Safety and Drug Administration) reported that all the packets of instant noodles tested in the laboratory were contaminated. They found a lead concentration of 17.2 ppm, nearly seven times the permissible limit. The acceptable limit of lead ranges between 0.01 ppm and 2.5 ppm.



But Maggi and Nestle are not the first food products in India to have come under the scanner over health and safety concerns. We take a look at other food items that raised a health scare in India.

1. 1998 mustard oil contamination

Adulterated mustard oil poisoning resulted in the deaths of more than 60 in Delhi and 3000 people fell ill. It was found that white oil was mixed with edible mustard oil.

2. Cadbury worms controversy

Food Article	Adulterant	Harmful Effects
Bengal Gram dhal & Thoor Dhal	Kesai dhal	lahyrism cancer
Tea	Used tea leaves processed and coloured	Liver Disorder
Coffee Powder	Tamarind seed, date seed powder	Diarrhoea
Milk	Unhygenic water & Starch	Stomach disorder
Sugar	Chalk powder	Stomach - Disorder
Black powder	Papaya Seeds and light berry's	Stomach, liver problems
Mustard powder	Argemone seeds	Epidemic dropsy
Edible oils	Castor oil	Loss of eyesight, heart diseases, tumour, stomach problems
Turmeric powder	Yellow aniline dyes	Carcinogenic
Chilli powder	Brick powder, saw dust	Stomach problems
	Artificial Colours	Cancer
Jaggery	Washing soda, chalkpowder	vomiting, diarrhoea
Honey	Molasses sugar (sugar plus water)	Stomach disorder

In 2003, Cadbury chocolates was flagged down by FDA following complaints that some samples of the confectionery were infested with worms. The incident was brought to FDA's notice after aggrieved consumers

from Andheri in north-west Mumbai lodged a complaint regarding the presence of worms from a packet bought in the locality.

Adulteration in Food Stuff and Its Harmful Effects

3. Coke-Pepsi pesticides controversy

It is started in 2006 when allegations were made by the New Delhi Center for Science and Environment (CSE) that pesticide residues were found in Coca-Cola and PepsiCo brands. The pesticide content was found to be 24 times higher than safety standards on aerated drinks developed by the Bureau of Indian Standards.

4. Indian milk contamination

In 2012, the Food Safety and Standards Authority of India found that more than two-thirds of Indian milk is adulterated with items like salt, detergent etc.

In India normally the contamination/adulteration in food is done either for financial gain or due to carelessness and lack in proper hygienic condition of processing, storing, transportation and marketing. This ultimately results that the consumer is either cheated or often become victim of diseases. It is equally important for the consumer to know the common adulterants and their effect on health.

Food contamination is transference of any objectionable or harmful substance or material to food. Adulteration brings a lot of easy money for the traders, but it may spoil many lives. There are three types of contamination that can potentially affect anyone:

1. Microbiological Contamination – Contaminants include food poisoning bacteria and yeasts.
2. Physical contamination – contaminants include wood, dead insects, metal fragments.
3. Chemical contamination – contaminants include cleaning materials, pesticide residues.

Chemical Contaminants in Foods and their Health Effects

S.No	Adulterant	Foods Commonly Involved	Diseases or Health Effects
	Chemical Contamination		
1	Methanol	Alcoholic liquors	Blurred vision, blindness, death
2	Arsenic	Fruits such as apples sprayed over with lead arsenate	Dizziness, paralysis, death
3	Barium	Foods contaminated by rat poisons (Barium carbonate)	arterial hypertension, muscular twitching, convulsions, cardiac disturbances.
4	Cadmium	Fruit juices, soft drinks, etc. in contact with cadmium plated vessels or equipment. Cadmium contaminated water	Increased salivation, liver and kidney damage, cancer.
5	Cobalt	Water	Cardiac insufficiency
6	Lead	Water, natural and processed food	Lead poisoning, insomnia, anemia, mental retardation, brain damage.
7	Copper	Food	Vomiting, diarrhoea
8	Mercury	mercury contaminated fish	Brain damage, paralysis, death
9	Artificial sweeteners beyond safe limit	Sweet foods	Chances of cancer

Frederick Accum was the first to raise the alarm about food adulteration. Accum was a German chemist who had come to London in 1793 and who quickly established himself as a chemical analyst, consultant and teacher of chemistry. By 1820 Accum had become aware of the problem through his analytical work and this led him to publish. A treatise on adulterations of food and culinary poisons - the first serious attempt to expose the nature, extent and dangers of food adulteration.

Adulteration has taken away the joy of life. Now everything you like may or may not have fallen prey to the adulterants. We consume honey assuming it to be healthy however if we could actually see what we did consume, the honey will not stay in the stomach. Be careful with your morning cup for instead of refreshing you up and giving you a kick-start for the day it just might get you bed-ridden. The mercury ridden food enters human body in two ways. One is direct way with straight fish consumption and the second is via the birds that eat this fishes. This is not only for human but every life form. Each life form which consumes it becomes part of the chain. Many deaths are reported due to mercury poisoning.

Conclusions

One of the most important food safety regulations in the food industry deals with personal hygiene. All persons who will be touching food items or items that will touch the food are required to wash their hands after using the rest room. Personal hygiene as a food safety regulation does not only govern hand washing but also the covering of hair and cuts on the body, wearing clean clothing to work, and covering the mouth and nose when sneezing or coughing and then washing the hands again. The adulteration in everyday item spoils our will to eat but turning a blind eye to these items is not the answer, you may feel it now but the opinion may change if you are unfortunate enough to land in a hospital. With a little planning and proper execution the adulterations can be totally avoided. The health of everyone is important and this becomes an added responsibility of family. ‘**Precaution is always better than cure**’. The best way to avoid these health problems is prevention. There are many steps we can take to ensure this. We can begin by taking interest in the place from where we buy our food ingredients, for example, is it from a reputed shop or retailer, we need to check out. We also need to check if these outlets are regularly checked by food inspectors and if the premises are kept clean. We need to check the expiry date and the source of the product. It is also necessary to talk regularly to the local community to check if people are falling sick after eating in a particular restaurant or food ingredients bought from a particular retailer. We should also create awareness in the local community on the ill effects of food adulteration. We need to remember that contamination could happen in very small amounts over a period of time and it might be impossible to detect or too late to intervene. So it is prudent that every one of us takes special interest in this subject and educate our families, friends and colleagues about this menace.

References

1. R.V. Bhat, Food Safety Evaluation: National and International Perspectives. Nutrition Foundation of India, New Delhi, India (1997).
2. K. Subbannayya, G.K. Bhat, S. Shetty, V.G. Junu, How safe is sugarcane juice?, *Indian Journal of Medical Microbiology*, 25, 73-74 (2007).
3. R.V. Sudershan, P. Rao, K. Polasa, Food safety research in India: A review, *Asian Journal of Food and Agro-Industry*, 2, 412-433(2009).
4. S. De, Food safety: Steps of rising concern, *Everyman's Science*, 65, 219-222 (2010).
5. R.T. Gahukar, Adulterated food, *Kisan World*, 36(8), 33 (2009).
6. P.K. Jaiswal, Common Adulterants/Contaminants in Food and Simple Screening Tests for Their Detection, Central AGMARK Laboratories, Nagpur, India (2011).
7. S. Majumdar, Food hazards and food security, *Everyman's Science* 64, 348-355(2010).
8. S.S. Mishra, Pesticide-rich food, *Down To Earth*, 19(18), 16 (2011).
9. K.P. Nair, T.B. Mathew, Home processing to address food safety issues in cereals, *Journal of Insect Science*, 26, 111-119 (2013).
10. R. T. Gahukar Arag, *International Journal of Basic and Applied Sciences*, 3 (1),47-54 (2014).
11. K. Sharma, P.P. Dhyani, S.S. Samant, Toxic chemicals in fruits and vegetables: An overview, *Everyman's Science*, 65,215-218 (2010) .
12. M.W. Sidiqui, R.S. Dhua, Eating artificially ripened fruits is harmful, *Current Science*, 99, 1664-1668(2010).
