



# UNVEILING THE SILENT THREAT: FOOD ADULTERATION IN BANGLADESH

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## Article Info:

Review Article

Received

**26.07.2023**

Reviewed

**25.09.2023**

Accepted

**15.10.2023**

**Abstract:** Food adulteration refers to the mixing, deception, and substitution of various hazardous substances for high-quality ingredients in the production of food. Typically, food is considered contaminated when it lacks essential characteristics or contains substances of poor quality that are harmful to health. Food adulteration in Bangladesh means by the practice of adding hazardous substances, toxic colours or noxious food additives. Most foods in Bangladesh are contaminated with dangerous chemicals at every step of the food chain, from production to consumption, toxic colours, preservative, used oil, unclean water etc, which cause a number of chronic and non-chronic ailments in the consumers. The issue of food adulteration has gotten out of control for the people of Bangladesh. This article discusses the effects of eating contaminated food on one's health as well as the roles played by the relevant authorities in combating the problem. This goal of this review article is not to shake blame at or disparage anyone. The purpose of this literature is to present current situation of food adulteration in Bangladesh and some possible suggestions in brief.

**Keywords:** Adulterants, Food adulteration, Formalin, Health, Profit, Safety.

**Cite this article as:** Hoque M. (2023). Unveiling the silent threat: Food adulteration in Bangladesh. *International Journal of Biological Innovations*. 5(2): 22-27. <https://doi.org/10.46505/IJBI.2023.5203>

## INTRODUCTION

The right to safe food has a profound impact on the rights to health, to food, and most crucially, to life in a time when human rights are indivisible, interdependent, and linked (Leon, 2014). However, in Bangladesh today, the right to safe food is often disregarded. According to news, features, and articles appearing in various Bangladeshi media, the majority of manufactured or processed foods are either significantly contaminated or unfit for eating by humans. Though the issue of food adulteration existed in

the past, it has steadily become a serious concern in Bangladesh in recent years.

Generally, most food adulteration does not necessarily affect public health but history shows that there are some cases where health was very seriously compromised (Mamta *et al.*, 2023). However, a lot of print media has printed that this is a silent killer and roughly over 65 million people worldwide are thought to have health issues as a result of eating adulterated food.



The issue of food adulteration is currently addressed by a number of different food safety laws, but the level is rising every day, making it imperative to control the issue in addition to the law's application (Balwan and Saba, 2022). The majority of food producers, processors, restaurant owners, and other business owners are all participating in some capacity in this unethical practice of adulteration. Foods are contaminated when hazardous chemicals and toxic artificial colors are used.

Foods that are spoiled and vulnerable are kept, sold, and given to customers. The highest levels of use of harmful chemicals in perishable foods are apparent, risking people's lives (Derek, 2013). With so many acute and chronic ailments, the availability of dangerous foods has a major detrimental impact on public health. The author is trying to highlight how retailers and traders are blind to social responsibility and how law enforcement agencies are constrained in their ability to address the country's current food security issues. This article notes to educate readers about the current situation of food adulteration and to persuade authorities to make the required changes.

### TYPES OF ADULTERANTS

According to the Food Safety and Standards Authority in New Delhi, India, there are three different types of food adulteration:

**Intentional adulterants:** Intentional adulterants are compounds that are intentionally added by an adulterer in an effort to maximize their profit margin. For instance, adulterants like sand, marble chips, stones, muck, chalk powder, water, colors, etc. injure the body.

**Incidental adulterants:** These adulterants are discovered in food products as a result of ignorance, carelessness, or inadequate facilities. The adulterer is not acting willfully in this instance; such as chemicals, rodent droppings, or larvae in diet.

**Metallic contamination:** It includes tin from cans, lead from water, mercury from effluent, and arsenic from pesticides and chemical industries (Ruchel *et al.*, 2008).

### PRESENT-DAY FOOD ADULTERATION SCENARIO IN BANGLADESH

An increased investment, a larger market and

high consumer demand are the reasons for the vast scale at which food adulteration has been occurring over the past five years. The worrisome situation that exists today is the result of food sellers' greed for quick, mega profits and moral depravity. Food adulteration is contributing to an increase in patients with cancer, diabetes, and kidney disorders. Foods are poisoned by pesticides and chemicals used in agriculture and food preservation (Prakash and Verma, 2014).

Even though Bangladesh's population is getting older on average, they are developing a number of diseases. In addition to meals, life-saving medications are often contaminated. In a recent examination by the Institute of Public Health Bangladesh, 43 consumer goods were discovered to be adulterated. 13 out of the 43 consumer goods tested had an adulteration rate of approximately 100%, which is 40% higher than the average.

In spices, sauces, juices, lentils, and oils, coloring chemicals such erythrosine, tartazine, yellow, and sudanese red cause cancer, allergies, and respiratory issues. The use of formalin and carbide in fish, fruit, meat, and milk also damages the liver and causes cancer. In addition, urea, sulfuric acid, milk, oleomargarine or lard, and DDT applied to dry fish cast long-term consequences such nervous system disease, depression, asthma, cardiac system, liver and kidney damage, among others. Rye flour is used in barley, bread and wheat flour (Shuchi, 2020).



Fig. 1: Using chemicals on fruits (above) and vegetables (below).







**Fig. 2: Inspection on fish to identify formalin.**

The World Health Organization (WHO, 2015a and 2015b) and Food and Agriculture Organization (FAO, 2016) estimated that each year in Bangladesh, over 45 lakh individuals suffer from various diseases. Food adulteration has been identified as one of the primary causes of the growth in cancer, liver, and renal disorders in a recent Ministry of Health study. Although all people are at risk from eating contaminated food, children and the elderly are the most affected. Children's ability to fight off diseases is declining due to contaminated diet. Together with the harm to their kidneys, livers, and other organs, they are also losing their mental capacity.

In addition to food adulteration occurring during the processing stage, poor food handling procedures also contribute to the problem of unsafe food. An estimated 90,000 to 200,000 food sellers in Dhaka provide meals for about 60% of the city's inhabitants. They do not, however, know how to handle food safely and work in very bad infrastructure circumstances. About 30% of meat store employees are unaware of zoonotic illnesses, 85% to 90% of them don't wear protective gear like aprons and gumboots, and 45% are unaware of the recommended hand-washing time (Alam *et al.*, 2020). Due to the improper and dangerous

handling of fish, 27% of fish retailers have dermatitis on their hands, fingers, and toes; 10% have diarrhea (Alam *et al.*, 2014).

Transparency International Bangladesh (TIB) has revealed that eating tainted food in Bangladesh directly damaged at least 5 million people (The Daily Star, 2014). The effects of food adulteration on the following generation will be catastrophic. Chemical use on food products and adulterated food are killing the next generation. The kids won't have positive memories and will be less intelligent. Frequently, people will need to visit a hospital. Daily increases in their medical costs will have a significant impact on the socioeconomic situation. As a result, food adulteration poses a serious threat to the entire country.

### **Examples of food adulteration in Bangladesh**

Edible soybean oil, milk, mustard oil, turmeric, flour, ata, sweets, pepper, various spices, wheat, ghee, various fruits including mango, banana and papaya, chanachur, jilapi, almost all different fishes and vegetables, among others (Mahfuz, 2014). Practically all food products in Bangladesh have some form of adulteration. The foods that are most frequently contaminated are fruits, vegetables (fig. 1), spices, oil, fish (fig. 2) and milk (fig. 3). These food products contain a variety of adulterants, including chemicals like formalin, carbide, and pesticides. In order to preserve corpses, formalin, an invisible chemical, is utilized. However, it is frequently used in Bangladesh to preserve fish, fruits, and vegetables.



**Fig. 3: Milk adulteration (above) and mixing water with milk (below).**

Long-term consumption of formalin has been linked to cancer, failure of the kidneys, and other health problems. Carbide is a dangerous material that is also used to ripen fruit. It might cause sickness, diarrhea, and other health problems (Gao *et al.*, 2023).

The National Food Safety Laboratory of the Government of the People's Republic of Bangladesh (NFSL) has discovered that a number of common foods, including carrots, beans, tomatoes, bananas, and mangoes, are contaminated with harmful pesticides. Higher concentrations of DDT (Dichloro diphenyl trichloroethane) are used in dried fish. Formalin, the addition of unclean water, the removal of fat, the inclusion of wheat flour or powdered milk, sorbitol, and detergent as thickening agents are all used to tamper with milk. Melamine and a prohibited pesticide are added to the powdered milk (Rahman *et al.*, 2015).

Drinks and fruit juices that are packaged and bottled are made using toxic materials. Cakes, biscuits, sweetmeats, etc. are manufactured in filthy facilities with rotting flour, rotten eggs, burnt oil, dirty water, and imported powder milk that has passed its expiration date, textile dyes, chemicals, and essence (Khan, 2014).

Other type of food adulteration occurs in Bangladesh is the use of urea. It may have caused the cadmium levels in puffed rice to be twice as high as those in raw rice. Calcium carbides are used to artificially ripen fruits, however they include arsenic and phosphorus, which can harm the liver, kidneys, prostate, eyes, and other organs (Chowdhury and Islam, 2014).

Burnt oil is used to produce iftar (breaking of fast) foods as peaju, alur chop, kabab, etc. during the fasting month of Ramadan, which has a detrimental effect on the digestive system. Drinking water in bottles and jars is mixed by pond water that is unclean, contaminated, or otherwise unhygienic, city water that is provided by the WASA (Water Supply Authority), and so on.

To make rice smooth and appealing, auto-rice mills frequently polish it to varying degrees, although this can reduce its nutritious value. Vitamin B or thiamine content decreases with an increase in polishing, while protein, fat, and other nutrients rise with decrease in polishing. The burned oils are frequently recycled in numerous facilities that produce chips, chanachur, semai, and noodles, as well as for frying fish and meat. This practice might result in more dangerous free fatty acids being present in burnt oil (Financial Express, 2023). Even perfume industry also do malpractice in their product manufacturing, to increase volume of perfume they use water.

### Health hazard by food adulteration

The effects of food adulteration on health could be either immediate, long-term, or both short-term and long-term for the body (Byju's, 2023).

#### 1. Immediate effect

Headache, asthma, runny nose, urticaria, and many other typical symptoms can be the direct cause. Stomach and intestine issues might include infections, diarrhea, and pain in the abdomen. Additionally to hyperactivity, contact dermatitis, and other skin-related issues, bleeding also occurred. Consuming mustard oil and argemone oil together causes epidemic dropsy.

#### 2. Long term effect

Long-term effects refer to harm or effects that last for a long time on the human body; they might include organ damage, birth defects, cancer, and liver damage. It includes damage to the teeth and bad effects on the human digestive system along with anemia, cardiac arrest, stomach problems, and numerous injuries to the skin, lungs, and eyes, among other body parts.

### POSSIBLE WAYS TO PREVENT FOOD ADULTERATION

The most important concerns to address in order to tackle the adulteration issues are those related to human rights, accurate offence detection, and the severity of punishments. Following structured efforts might be beneficial for preventing food adulteration:

- a) Creation of widespread public knowledge of the effects of food adulteration on long-term health.
- b) Exemplary and severe penalty for the food adulterer. Depending on the severity of the charges and the intended result, life in prison or the death penalty may be an option.
- c) Enhancing the food inspection service with qualified personnel, reliable analytical tools, and proper, sustainable enforcement of pertinent laws.
- d) Training provided to farmers by the zonal agriculture department on the use of substitute, safe chemicals.
- e) Promotion of moral behavior among businesspeople with the involvement of business leaders directly.



- f) For every type of food study and research across the nation on a district basis, well-equipped laboratories are essential for testing formalin, DDT, preservatives, carbide, and colour control by qualified and experienced cadres.
- g) The system of study and processing must adhere to the authority of food inspection's rules of accountability and transparency. For offenders, confirmation of punishment must be effective.
- h) The government, through the relevant ministries, putting into effect all international accords and guidelines for safe food.
- i) The certification of food packages derived from industrial goods should be confirmed or ensured by the government.
- j) Government announcement of rewards for sharing details about food adulteration factory, supply chain, selling points, and syndicate.

## CONCLUSION

Food adulteration occurs more frequently in hotels and restaurants when expired and rotting food is mixed with freshly prepared food before being served to clients. The businessman who modify with food is endangering public health and violating human rights to safe food. Additionally, dangerous chemicals are being used to adulterate fruits and raw vegetables. The consumption of contaminated food products has a negative impact on human health by leading to numerous acute and chronic illnesses. Food adulteration must end immediately. To protect residents' lives, the People's Republic of Bangladesh's Government must outlaw the practice of adulterating food. There are many laws but none of them are in action properly. Adequate measures by the concerned authorities, civil societies; print and electronic media, social organizations and even consumers can make a difference to ensure food security and safe food for all.

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