

# Study and Analysis of Food Laws for Food Adulteration in Indian Perspective

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**ABSTRACT:** The purpose of this study is to create awareness of food adulteration among the consumer and the factors influence by the consumers to consume adulterated food. Without food regulations no country can ensure food safety and Multiplicity of food laws, standard setting and enforcement agencies pervades different sectors of food, which creates confusion in the minds of consumers, traders, manufacturers and investors. India has therefore legislated the Food Safety and Standards Act, 2006 (FSSA). Many efforts or rules have been taken by the Government but still the situation is alive through **new integralted comprehensive central legislation Food Safety and Standards Act 2006 (34 of 2006)**. All previous food laws that existed prior to 2006 like the Prevention of Food Adulteration Act were repealed once the FSSA was implemented. **Food safety and standards Act FSSA, 2006** is an Act enacted to keep up with the changing needs / requirements of time and to consolidate the laws relating to food and to establish the Food Safety and Standards Authority of India. It has intention of providing safe, hygienic and wholesome food for the citizen's of the country. The act aims to establish a single reference point for all matters relating to food safety and standards by moving from multilevel departmental control to a single line of command, to this effect, the act establishes an independent statutory authority the food and standards authority of India with head office at Delhi. India's long term is to have a strong and proactive system of quality assurance is based on statutory and regulatory authorities, consumer awareness and legal enforcement where required.

**Keywords:** - Food Adulteration, Various food laws, Food Safety and Standards Act 2006 and Regulations 2011

## 1. Introduction

An adulteration is a common problem not only found in existing local net area but it is mostly found the world. Food provides us with important nutrition and plays a vital role in maintaining proper health which also helps in prevention and cure of diseases. The world is facing a potential crisis in terms of food security, due to lack of production and supply of safe and nutritional food. Adulteration seems to be getting deadlier and serious problem present in over society that should be eradicated .Food adulteration is a social evil and major problem of the every society [1,7]. Adulteration in food products in India has been rampant especially in the products that are sold in Urban- Slum areas, semi-urban as well rural areas where the innocent consumers are cheated due to sub-standards/poor quality of food products even after paying the reasonable prevailing retail prices. India is the country of farming. Food and water are not only the elixir of life but these valuable products are worshipped as god in India [1]. Food law has traditionally consisted of legal definitions of unsafe food, and the prescription of enforcement tools for removing unsafe food from commerce and punishing responsible parties after the fact. It has generally not provided food control agencies with a clear mandate and authority to prevent food safety problems. The result has been food safety programmes that are reactive and enforcement-oriented rather than preventive and holistic in their approach to reducing the risk of food borne illness. To the extent possible, modern food laws not only contain the necessary legal powers and prescriptions to ensure food safety, but also allow the competent food authority or authorities to build preventive approaches into the system. Food laws play an important role in the quality control strategy. A number of laws have been enacted in the country control for the purpose of laying down quality standards. There are various other supportive acts made for healthy business in food line and consumer welfare and stability of law and order regarding supply of food, quality, and quantity. There are two kind of food laws and orders in our country .first one is for monitoring safety standards mandatory, compulsory in nature and second quality standards mostly voluntary .Anyway overall aim of food laws is to maintain food quality and quantity keeping all pros and cons of welfare and harm to consumer first and which may not be interfering in fair trade or food procedure business .it is constituted duty of every Government to care

about health and living status of the public and at the same time to allow food business to grow and develop according to increasing demands [10,11,12].

Multiplicity of food laws, standard setting and enforcement agencies pervades different sectors of food, which creates confusion in the minds of consumers, traders, manufacturers and investors. Detailed provision under various laws regarding admissibility and levels of food additives, contaminants, food colors preservatives, etc. and other related requirements have varied standard under these laws. The standards are rigid and non-responsive to scientific advancement and modernization. In view of multiplicity of laws, their enforcement and standards setting as well as various Implementing agencies are detrimental to the growth of the nascent food processing industry and is not conducive to effective fixation of food standards and their enforcement [5, 6,12].

Food safety is of primary concern to food agricultural organization (FAO) and world health organization (WHO). Food safety providing assurance that food will not cause harm to the consumer when it is prepared and /or eaten according to its intended use (FAO, 1996). Food safety is as an area requiring priority attention to safeguard the economic interests of small holder farmers and the poor .there is a glaring lack of relevance of private sector, agricultural research in developing countries to the genuine needs of the poor. Food safety is a function of the nature of technology used to produce and process food .it can be manipulated through genetic improvement, agronomic practices and postproduction storage and processing [5].

Government of India, held extensive deliberations and approved the proposed integrated food laws with certain modifications. the integrated food laws has been named as “food safety and standards bill 2005 and this bill enacted by parliament and known as food safety and standards Act 2006, Rules 2011and Regulations 2011“(34 of 2006) on 23<sup>rd</sup> August 2006. An act to consolidate the laws relating to food and to establish the food safety and standards authority of India for laying down science -based standards for articles of food and regulate their manufacture ,storage, distribution, sale and import, to ensure availability of safe and wholesome food for human consumption and for matters connected therewith or incidental thereto [5,12].

Objectives of this research work is to impart knowledge, Protecting public health by reducing the risk of food borne illness, Protecting consumers from unsanitary, unwholesome, mislabelled or adulterated food, Contributing to economic development by maintaining consumer confidence in the food system and providing a sound regulatory foundation for domestic and international trade in food. various acts, rules, regulations, standards, orders and laws related to food articles governing their manufacture, import, export, storage, distribution and sale and understand the food regulatory mechanism in our country and to study about the knowledge and awareness of common food adulterants and able to understand through this study among the consumers ,the manufacturers, retailers and wholesalers to take keen interest in the production and supply of hygienic and nutritious food for the well being of society.

### **1.1Food Adulteration**

Food adulteration is a growing menace that unscrupulous traders and manufacture all over the world indulge in to exploit gullible consumers to make quick and easy money. It is very difficult for the consumer to select one food item because of misleading advertisements, improper media emphasis and food adulteration. As a result of these malpractices, the ultimate victim is a consumer, who innocently takes adulterated foods and suffers. In all free market societies where legal control is poor or nonexistent with respect to monitoring of food quality by authorities, usage of adulterants is common and rampant. Every nation on earth has suffered cases of adulteration at one time or other. Government authorities with great efforts have succeeded in reducing the recurrent occurrences; but have not been able to eliminate it. Only an aware and an informed consumer will be able to eliminate it conclusively by continuous routine monitoring. The dictionary defines food adulteration as 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 [4, 11, 12].

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 the usage of adulterants has been

common in societies with few legal controls on food quality and poor /nonexistent monitoring by authorities, dangerous chemicals and poisons. Food additives are not adulterants, if present within the specific limits. And exceeded limits they become significant adulterants and can cause serious health hazards to the consumer's .food adulteration are chemical substance added to processed foods (i) to enhance /retain quality attributes such as texture, physical properties, taste, flavor etc. (ii) to control the spoilage and enhance shelf life of the processed foods. First category of food additives include Antioxidants, emulsifiers/stabilizers, preservatives, anti caking agents, artificial sweeteners, bulking agents, acid regulators, leavening agents, flavoring agents, glazing agents[7].

## 1.2. Existing and Emerging Food Safety Problems

A variety of chemical, biological and physical hazards are the major causes of food safety problems. 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(2). Although not all food incidents are injurious to health, nevertheless they undermine consumer confidence in food safety and are costly to individual companies and national economies. Novel foods, such of unapproved varieties of genetically modified foods (e.g. star link variety of maize) have in the past posed problems of food allergenicity [2, 3].

## 1.3 Reasons of food adulterations

A food article (product) would be considered adulterate due to any one from the following reasons-

- (a) If the product sold by a vendor is not of the nature, substance or quality demanded by the purchaser or which it purports to be.
- (b) If the product offered contains any substance or if it is so processed as to injuriously affect its nature, substance, or quality.
- (c) If any inferior or cheaper substance has been substituted wholly or partly in the product, or any natural constituent has been wholly or partly abstracted from it, to affect its quality.
- (d) If the product had been prepared, packed, or kept under unsanitary conditions, has become contaminated, injurious to health or is unfit for human consumption.
- (e) If the container of the product is composed of any poisonous or deleterious substance which renders its contents injurious to health.
- (f) If the product contains any prohibited colouring matter, preservatives, or contains any permitted colouring matter or preservative in excess of the prescribed limits.
- (g) If the quality or purity of the product falls below the prescribed standard, or its constituents are present in proportions other than those prescribed, whether or not rendering it injurious to health.

Thus to put it in perspective we can say that adulteration is "The act of intentionally debasing the quality of food offered for sale either by the admixture or substitution by inferior substances or by the removal of some valuable ingredient" [4, 5, 6, 12].

### 1.3.1 Another reason for food adulteration

The causes of adulteration may be, In general, following are the reasons for adulteration

- i) Increase the value of commercial attributes/characteristics of the products.

- ii) Sometimes adulteration, even though not hazardous, may lead to severe contamination issues, e.g. spraying of water on dry chilies to cope with excess weight loss may lead to Aflatoxins.
- iii) Blending is not adulteration, unless origin of the product is significant
- iv) When supply is less than demand, to earn more profits.
- v) Shortage of authentic ingredients at affordable prices
- vi. Inadequate knowledge on the consequences and associated food safety risks.
- vii) Lack of awareness and updating of the information on the adulteration related food safety outbreaks.
- viii) Availability of too many products in the market
- xi) Poor buying practices of consumers.
- x) Consumer mentality of bargaining,
- xi) Consumer psyche.
- xii) Availability of adulterants.

It is true that, adulteration primarily thrives in a period of shortages. The consumer's real income is falling due to rising prices of even essential commodities. Psychologically, consumers pay less attention to the quality of products during this period. He/she is facing disadvantages in the form of adulteration. Now a day, "Adulteration is health menace". Thus, food adulteration takes many forms: mixing, substitution, abstraction, concealing the quality sale of decomposed foods and using false labels. The pity is that the so-called modernization has brought with it, the evils of adulteration. Somehow, the Indian consumer has become accustomed to live with adulteration. Even educated consumers do not pay attention to the menace of adulteration. Many of the spices, ready to eat ground masalas and commonly used products are found contaminated/adulterated. The adulteration problem in India has attained massive dimensions [8].

#### 1.4. Types of adulteration:

There are three types of adulteration namely:

##### 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. Metallic contamination:

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

##### 3. Incidental adulterants:

Incidental adulterants are pesticide residues, tin from can droppings of rodents, larvae in foods. Metallic contamination with arsenic lead, mercury can also occur incidentally. Pests such as rodents and insects intrude into the food at high degree and produce filth in the form of excreta, bodily secretions and spoilage through micro organisms. The most common incidental adulterants are pesticides, D.D.T and marathion residues present on the plant product. The maximum permissible residue allowed for D.D.T, marathion is 3 ppm. when ingested. The toxins usually pile up in the fatty tissues of such vital organs as the thyroid, heart, kidney, liver, mammary gland and damage these organs. They can be transferred from the umbilical cord/ blood to the growing foetus and through breast milk in children, the disease apart from crippling them inhibits their growth [8,11,12].

### 1.4.1 Examples of common Food Adulteration in different food commodities:-

Now a day several reports were accounted in various food items such as milk spices, ghee, and oil and fats. Adulteration in food is normally present in its most crude form; prohibited substances are either added or partly or wholly substituted. 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. Such types of adulteration are quite common in developing countries or backward countries. However, adequate precautions taken by the consumer at the time of purchase of such produce can make him alert to avoid procurement of such food .it is equally important for the consumer to know the common adulterants and their effect on health. Adulteration most often includes artificial colours, sand, marble chips, stones, mud, other filthy material talc, chalk powder, water, mineral oil, vegetable oil argemone seeds etc. There are various techniques to detect the adulterants such as chemical method or with help of sensitive instruments [7,8].

### 1.4.2 Recent major Incidence of adulteration Incidence in India

2009 Sep 20 8 kg spurious desi ghee ghee and adulterated garam masala with other material from varanasi in Shivpur. People used to prepare desi ghee by mixing hydrogenated (vanaspati) ghee and chemicals. Besides, they also used to make adulterated garam masala. (Source: Times of India)

2009, 26 October varanasi: in collection of food samples as per norm is evident, especially from Varanasi Nagar indicate that as many as 58 food samples (90 per cent of them being dairy products), which failed food analysis test, have been registered under PFA Act and the number of failed samples can be close to 100, (till the month of September) this year have failed the food analysis test, showing signs of adulteration, while over 450 cases have been pending for the past five years. Another interesting revelation of the cases of food adulteration registered under PFA

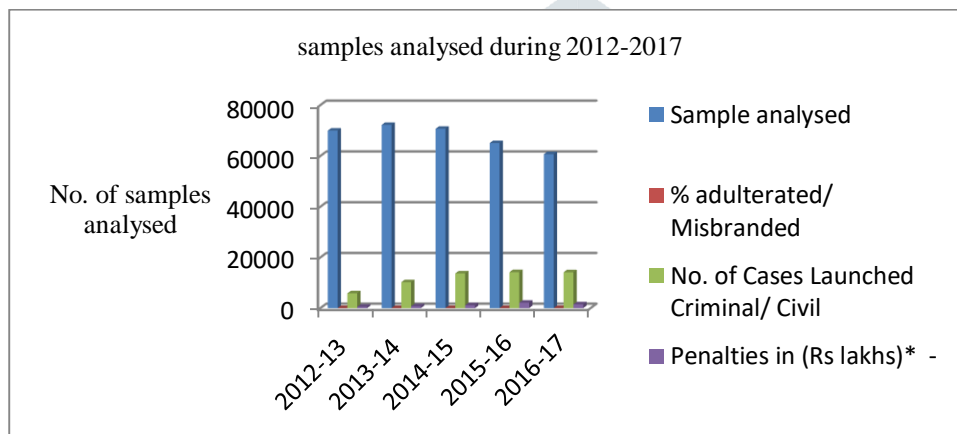
Act in the city is the fact that almost three-fourth (75 per cent) of these cases belong to adulteration of milk products, including khoya, sweetened curd and even cream, in different parts of the city. Similarly, areas that have registered maximum number of samples of food adulteration include Sigra, Luxa and Nadesar while trans-Varuna areas include Pandeypur and Bhojubir [Source:Times of India].

2009, 16 September varanasi: As many as 10 food samples were collected from different parts of the city, including Visheshwarganj Mandi, and a number of samples of desi ghee and other milk products, including sweetmeat and dal, were collected. The health department of VNN had also collected a dozen food samples during surprise inspections. While two samples of desi ghee were collected from Vishesharganj Mandi, a prominent market in the city, a number of samples of sweetmeats and dal were also collected from Bhelupur, Durgakund and Sarnath. The practice was believed to increase during the festive season. (Source: Times of India)

Generally food security for the urban people is closely related to many factors like their age, religion, marital status, economical status, scarcity of clean water for cooking, drinking, washing lack hygienic aspects, due to lack of awareness and improper sanitation in food preparation has great impact on health. Beside this, bad practices, poor hygiene environments and lack of awareness lead to spread of various communicable diseases via the food system. Table 1 shows the common food adulteration found in different food commodities [11, 12, 13].

**Table 1: FSSAI Laboratory Testing Reports on Food Adulteration [12]**

Sr.No	Year	Sample analysed	% adulterated/ Misbranded	No. of Cases Launched Criminal/ Civil	Penalties in (Rs lakhs)*
1	2012-13	69949	14.8	5840	525
2	2013-14	72200	18.7	10235	734
3	2014-15	70688	19.7	13679	1099
4	2015-16	65057	21.79	14179	2101
5	2016-17	60671	23.28	14130	1480

**Fig1: Fssai sample analysed, adulterated, penalties during 2012-2017 in India**

**Table 2 Common Food Adulteration in different food commodities [10,11, 12]**

Sr. No.	Food stuff	Adulterants	Health Hazard
1	Milk	Water, skim milk, 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).	Indigestion kidney stone and renal failure in children(melamine in milk)
2	Khoa, Chhana, ice-cream	Starch, substandard fat, non permitted colour ,blotting paper, vanaspati/margarine,	Toxic
3	Butter	Mashed potatoes, other starches, vanaspati /oleomargarine/lard	Economic loss
4	Ghee	Vegetable oil, cheaper animal fat	Economic loss
5	Edible oil (vegetable oil )	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.	Erythema, epidemic dropsy, hepatitis odema (skin and liver disease
6	Vanaspati	Cheaper fat ,groundnut, cottonseed and linseed oil	Economic loss
7	Coffee powder	Mug dad coffee (senna occidentalis) ,roasted powder of wheat, gram, date seed, chicory and tamarind husk, corched persimmon stone powder	Economic loss
8	Tea dust leaves	Artificial colour, tea wastes, gram husk, coffee husk, cashew nut endosperm, by product of leather industry, tamarind seed powder, sawdust, exhausted tea, chicory powder, iron filling	Cancerous
9	Soft drink alcoholic and other beverages, fruit products	Non permitted colour, Artificial sweeteners as saccharin, dulcin	Toxic /carcinogenic
10	Chilies powder	Sawdust, brick powder, non permitted colour, salt, talc powder	Toxic
11	Turmeric powder	lead chromate, foreign starch, common salt, husks, earthy matter, Metanil Yellow, Other aniline dyes (Non permitted colour)	Cancerous, carcinogenic
12	Dal whole and spilt pulses (Food grains)	Dust, pebble, stone, straw, weed seeds, damaged grain, weevil led grain, hidden insects, rodent hair & excreta, kernel bunt, ergot (bajra), khesari dal, clay ,gravels, webs, non -permitted colour	Toxic, Incurable paralysis
13	Maida, suji (rawa)	Resultant Atta, cheaper flour, boric acid, sand, soil, insects, webs, lumps, iron fillings ,rodent hair and excreta, excess bran, chalk powder,	Abdominal pain
14	Asafoetida	Soap stoner, or other earthy material, starch, foreign resin,Other resin Colophon residue obtained after the distillation of turpentine oil.	Abdominal pain
15	Jaggery	Chalk powder, sugar solution, sodium carbonate, washing soda, non permitted colour.	Economic loss
16	Cinnamon	Cassia bark of chichi dalchini	
17	Cumin seeds	Grass seeds colored with charcoal dust	
18	Saffron	Dried tendrils of maize cob	Economic loss
19	Iodized salt	Common salt, white powdered	Abdominal pain
20	Whole spices	Dirt, dust, straw ,insect, damaged seeds ,other seeds, rodent hair and excreta	Economic loss
21	Black pepper	Papaya seeds, light black pepper, coated with mineral oil, black pinheads	Economic loss
22	Cloves	Volatile oil extracted Exhausted or De-oiled Cloves.	Economic loss
23	Dhania powder	Starch, cow dust or horse dung, powder, sawdust	Micrological toxication
24	Pithi sugar	Washing soda, chalk powder, yellow colour(non permitted )	Economic loss
25	Wine	Diethelyne glycol	Toxic
26	Honey	High Fructose corn syrup, sucrose, invert sugar, cane sugar solution, gur, starch, glucose, wax, water.	Economic loss

### 1.4.3 Food Regulation in India and Hazard Analysis Critical Control Point (HACCP)

In India, quality control with regard to food products is being enforced through various Regulatory mechanisms like the Prevention of Food Adulteration Act (PFA), Agriculture

Grading and Marketing (AGMARK), Fruit Products Order (FPO), etc. The Bureau of Indian Standards (BIS) has recently launched a HACCP certification program for the food industry. The Mother Dairy of Delhi and the Punjab Cooperative Milk Federation has received HACCP certificates. The Agriculture and Processed Food Export Development Agency (APEDA) has helped mango processing units in Andhra Pradesh in implementation of HACCP. While efforts are being made to implement HACCP in the organised sector of the food industry,

there is a need to implement HACCP in the unorganized sector also as it accounts for 70-80% of food produced and processed in India [12].

### 1.5 Various Laws on food Adulteration in India

Likewise there is multiplicity of laws, enforcement and standard setting agencies. following are the various food laws in India with their mode of implementation ,implementing ministry, area in food business and area of food commodities covered .

**Table 3 Comparative Chart of various food Laws/Orders in India [12]**

Sr. No	Food Act/order	Mode of Implementation	Implementating Ministry	Area in business	Area of Food commodities
1	Prevention of food Adulteration Act 1954and Rules1955(PFA)	Mandatory	Ministry of Health and Family Welfare, Directorate General of Health Services	Internal Quality Control, Indian food Market	All food commodities
2	Fruit product order 1955(FPO)	Mandatory	Ministry of food processing, Govt. of India food and Nutrition Board	Internal market and Export	All Fruits and Fruit beverages and similar products
3	Meat and Meat products order1973	Mandatory	Ministry of Agriculture and Rural Development, Directorate of Marketing and Inspection	Internal market	All Meat and Meat like products
4	Agricultural Produce (Grading and Marking)Act 1937(AGMARK)	Voluntary (sometimes Mandatory)	Ministry of Agriculture and Rural Development, Directorate of Marketing and Inspection	Internal market	All Agro and Allied commodities
5	Essential commodities Act1955and 1997and Prevention of Black Marketing and Maintainance of supplies of Essential commodities Act1980	Mandatory	Ministry of Food and Civil Supplies, Govt. of India implemented through district collectors.	Internal trade w.r.t. Quantity	All food stuff as well as other article essential for daily life
6	Atomic Energy Act, 1962 Control of Irradiation of Foods Rules, 1991	Compulsory	Dept. of Atomic Energy, Govt. of India	Internal market as well as Import of Irradiated food	Irradiated foods ,G.M. and Organic Foods
7	Imports and Export (Q.C. and Inspection Act 1963	Mandatory/Statutory	Ministry of Science and Technology, Govt. of India, Export Inspection council	Export of food products	Foe food and Agro products and others for Export Market
8	Milk and Milk Products Order1992	Mandatory	Ministry of Agriculture, Govt. of India, Milk and Milk Products Advisory Board	Internal and International Trade	All Milk Products and fluid Milk
9	The Bureau of Indian Standards1986,Indian standards Institution(Certification Marks)Act 1952	Voluntary /sometimes compulsory	Ministry of consumer affair.ISI	Internal and International Trade	All Articles of food /other commodities
10	Standards of weights and Measures (packaged commodities )Rules 1977	Voluntary /sometimes Necessary	Ministry of Civil supplies and consumer affairs	Internal Market	For every packet of all commodities
11	Monopolies and Restrictive Trade Practice Act 1969	Compulsory	Ministry of commerce and company affairs, Govt. of India affair,	Internal Market,	Synthetic dye, Antibiotics, mineral oil, plastic Material
12	Solvent Extracted Oils, De-oiled Meal and Edible flour control (order) 1967,	Mandatory	Ministry of Civil Supplies and consumer affairs	Internal Market	All edible oils/Flours and similar products
13	The Vegetable Oil Product Control(Order),1947,(Standard of Quality),1975,	Statutory and Compulsory	Ministry of Industry, Govt. of India. Directorate of Vanaspati	Internal Market	Vanaspati and edible oils used for Hydrogenation



14	Consumer Protection Act,1986,	Statutory and Voluntary	Ministry of food and civil supplies through consumer protection forums	Internal Market (consumer himself must be aware about its aims	Any case regarding quality, quantity, price etc. of all food products and health issues too.
15	Packaged Commodities Rule, 1977	Mandatory	Ministry of Civil Supplies and Commerce, Dept. Of Metrology	Every Marketing aspect of a packed product	Labelling of a food package and quantity in it,
16	Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992- Rules, 1993	Mandatory	Ministry of human resources department (Development of Women and Child Welfare)(16).	Internal Market	Infant milk substitutes, infant foods
17	Endangered Species Act Ecomark	Voluntary	Ministry of forests and environment	Internal Market	Endangered Species
18	Tea Act 1954	Compulsory/Mandatory	Ministry of commerce, Indian licensing committee of Tea Board of India	Internal and Export Market	Every aspect of Tea
19	Coffee Act 1942 and Rules	Compulsory	Ministry of commerce, coffee Board of India.	Internal and Export Market	Every aspect of Coffee
20	Drug and cosmetic Act 1940.	Mandatory	DGHS, Chairman of Drug Technical Board, Govt. of India	Internal Market	Differentiations between drug and food ,colours, Antibiotics, Vitamins
21	Food Safety and standards Act 2006,Rules 2008 and Regulation 2011	Mandatory	Ministry of Health and Family Welfare, Directorate General of Health Services	Internal Quality Control, Indian food Market	All food commodities

### Source- Food Safety and Standards Authority of India

Apart from this many organizations viz. Bureau of Indian Standards, Central Committee for Food Standards, Ministry of Rural development under “Agmark”, Export Import Council under Exim Policy etc. lay down standards in the food sector. Then there are many overlapping and contradictory provisions in the above-mentioned legislations and rules and orders. The report concluded that the system is over regulated and under administered. Further it laid down the salient feature for the new modern integrated food law as well as the duties of the Food Safety and standards Authority. After doing an in-depth study in the food laws of the countries where

there is a central food authority, secretary came up with many suggestions. The practices like focus on in-process quality control rather than product testing, compliance rather than prosecution, compounding of minor/technical violation, high Power Screening Board to examine

cases before prosecution, Periodic quality audits of food factories, etc. were also observed by the commission. It is interesting to note that FSSA, 2006 is mainly based on the recommendations of the member secretary of the Law Commission [12].

## 2.0 The Codex Alimentarius

The Codex Alimentarius is a Latin term that means “Food Law or Code”. It is a collection of international food standards adopted by the Codex Alimentarius Commission, which is an international body responsible for the execution of the Joint FAO/WHO Food Standards

Programme. FAO and WHO created the Commission in the year 1962. The programme is aimed at protecting the health of consumers and facilitating international trade in food. The standards in the Codex are for all principal foods, whether processed or semi-processed or raw. A country in any one of the ways may accept this standards. In the Preamble to the Code of ethics for international trade in Food, the right to standard of living adequate for the health and well being of the individual and his family is proclaimed in the universal declaration of human rights of the United Nations. Therefore, the major objective of the work of commission is to protect the health of consumer and ensure fair practices in the trade in food [6].

## 2.1 Food Safety Standards and Acts 2006 (34 of 2006), Rules 2008, Regulations 2011.

Food safety means assurance that food is acceptable for human consumption according to its intended use and there are certain standards that has been defined by the Food Safety and Standards Authority of India. Parliament of India has enacted the comprehensive legislation which considerable the laws relating to food. The new act namely food safety and standards act 2006 (Act no. 34 of 2006) is based international legislative instrumenatalistics and codex Alimentaries commission which are related to find norms with the aims to establish Food Safety and Standards Authority of India(section 4). The Food Safety and Standards Authority of India (**FSSAI**) is laying down for science based standards of food articles and to regulate their manufacture like ensured availability of safe and wholesome foods for food safety and standards act 2006 .the new act has been introduced with the intention of providing safe, hygienic and wholesome food for the citizen's of the country. It also bestows responsibility on the manufacture and supply safe, hygienic food and wholesome food. It provides provision regarding food recall problems and improvement notice, compensation to the victim or the legal represented to be paid by vender or manufacturer. This law focuses on establishment of Food Safety and Standards Authority India, it composition and duties and functions of Chief Executive Officer, central advisory committee, scientific committee, scientific panel and provisions as to articles of food. it prohibits toxic substances, heavy metals, pesticides residue, veterinary drugs residues, antibiotics residues and microbiological counts, restriction of advertisement and prohibition as to unfair trade practices, imported food articles under foreign trade follow this act and rules and regulations made there under and special responsibilities of food business operators as per section 26 provisions relating to import, food recall procedures as per section 28. Immediately to with draw food sample from market, liability of manufactures, packers, wholesalers, distributors and sellers enforcement of this act. The food safety authority of India and state food authorities (food safety commissioner, designated officer, food safety officer) specified in the sections 30(1), 36(1), and 37(1) of this act are responsible for enforcement of this provision of the act. it empowers to monitor and verify relevant requirements are fulfilled by food business operators, licensing and restrictions of food business empowers the state govt. to appoint commissioner of food safety designated officer, food safety officer given power of search ,seizure, investigation, prosecution and procedure thereof for efficient implementation of food safety and standards and other requirements laid down under the act or rules and regulations made there under the purchaser to get analyzed any article of food from the food analysts (section 42).the act includes rules 2008 and 2011 ,various regulations like procedures for transaction of business of central advisory committee(2010),transaction of business assist meetings, procederes of scientific committee and scientific panels, There are six Regulations 2011 like food products standards and food additives(part I and II), laboratory and sampling analysis, licensensing and registrations of food businesses ,packaging and labeling ,prohibitions and restrictions on sales, contaminants, toxins and residues, regulations 2011 [4,5,6,9,10].

Food safety and standards Act 2006 includes 101sections,first and second schedule ,various Regulations, definition of food, unsafe food under section 3(zz) ,standard, substandard ,Adulterant, contaminants, extraneous matter, food additives, hazard identification ,hazard characterization ,claim, consumer etc. are taken from codex, food authority, establishment of the scientific panel and committees, food safety audit, Misbranding food, unsafe food, risk analysis, risk assessment, communication management, Food safety management system, Provision for food recall, improvement notice, Surveillance, New enforcement structure, Envisages large network of appropriate recognition and accreditation of food laboratories from national accreditation board for laboratories, Food Safety Appellate Tribunal a new justice dispensation system for fast track Disposal of cases, graded punishment, mandatory standardization for food Harmonization of domestic standards with International food Standards, covering Health Foods etc. The main features of the Act are to establish an integrated line of control and response, decentralization of licensing, single reference point, self-compliance, making the business food operators to ensure the quality at all the stages and the act claims to be contemporary, comprehensive, and having standards based on science and transparency [4,5,6].

To fight adulteration numerous laws have been stipulated by ministry of food and related ministry to check consumer interest and stop malpractices. Following are the acts enacted by government of India[13].

The Prevention of Food Adulteration Act, 1954

- I] The Fruit Products Order, 1955
- II] The Meat Food Products Order, 1973
- III] The Vegetable Oil Products (Control) Order, 1947
- IV] The Edible Oils Packaging (Regulation) Order, 1998
- V] The Solvent Extracted Oil, De oiled Meal, and Edible Flour (Control) Order, 1967
- VI] The Milk and Milk Products Order, 1992
- VII] Essential Commodities Act, 1955 (in relation to food)

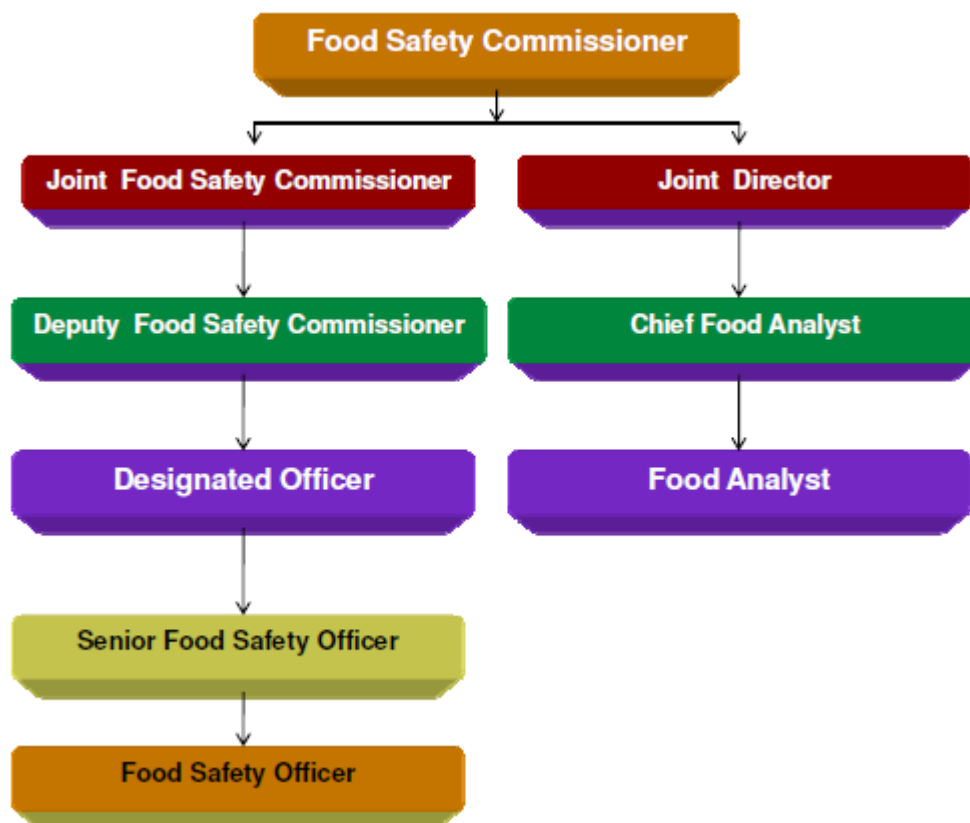
## 2.2 IMPORTANT MISCELLANEOUS PROVISIONS [13]

1. If any extraneous additions of colouring matter are added, the same should be indicated on the labels
2. From the labels the blending composition of ingredients should be clear to the customer
3. Sale of kesari gram individually or as an admixture is prohibited
4. Prohibition of use of carbide (acetylene) gas in ripening is prohibited
5. Sale of ghee with Reichert value less than the permitted level
6. Sale of admixture of ghee or butter is prohibited
7. Addition of artificial sweetener should be mentioned on the label
8. Sale of food colours without license prohibited
9. Sale of insect damaged dry fruits and nuts prohibited
10. Food prepared in rusted containers, chipped enamel containers and untinned copper/brass utensils are treated as unfit for human consumption
11. Containers not made of plastic material which is not according to the standards are not to be used
12. Selling salseed fat or any other purpose except for bakery and confectionery is prohibited
13. Store of insecticides in the same premises where food articles are stored is prohibited
14. Milk powder or condensed milk can be sold only with ISI mark
15. Use of more than one type of preservative is prohibited
16. Crop contaminants beyond certain specified level is treated as adulterant
17. Naturally occurring toxic substances in the food material beyond certain level is considered as unfit for human consumption
18. No anti-oxidant, emulsifiers and stabilising agent is permitted beyond the prescribed level
19. No insecticides should be sprayed on the food items
20. Oils can be manufactured only in factories licensed for such purpose

**Table 5-ENF ORCEMENT OF FOOD SAFETY ACT 2006**

1	Food safety commissioner	Appointed in all States/UTs
2	Designated officer	Appointed in all States /UTs ( to confirm Qualifications)
3	Food safety officer	Appointed in all States /UTs except Diu Daman and Sikkim
4	Food Analyst	Appointed in all States /UTs ( to confirm Qualifications)
5	Special cadre	States to provide their food safety organization structure
6	Adjudication officer	Appointed in all States /UTs except Arunachal Pradesh, Assam, Chandigarh, Dadra & Nagar Haveli, Daman and Diu, Jharkhand, Kerala, Meghalaya, Mizoram, Orissa and Nagaland
7	License & Registration	Started in all States /UTs except Delhi, Lakshadweep, Manipur, Orissa and Nagaland
8	Sample collection	The Following States have not started food sample collection process, Assam, Haryana, Himachal Pradesh, Kerala, and Madhya Pradesh. Manipur, Nagaland, Orissa, Punjab, Rajasthan, Sikkim and Tripura
9	Steering Committee	Constituted in Meghalaya, Tripura,, Mizoram and Andaman and Nicobar Islands and Uttarakhand only states Steering Committee has been constituted.
10	Tribunal	Established in Tripura, Delhi and Andhra Pradesh ,Maharashtra, Chhattisgarh, Gujarat, Uttar Pradesh, West Bengal are in the process of establishing tribunal

Source-Fssai2013

**Major Functionaries in the state**

Source-Fssai2013

### 2.3. Food Safety Standards (Laboratory and Sampling Analysis) Regulations, 2011

The food safety and standards (Laboratory and Sample Analysis) Regulation, 2011 came into force on 5<sup>th</sup> August 2011. The salient features of these regulations are that it provides details on notified laboratories, laboratories for imports, referral laboratories, their functions, area of jurisdiction and quality of sample sent for analysis. There are 140 food testing laboratories in the country for testing of food products as per standards prescribed under the food safety and standards Act 2006 and Rules/Regulations, 2011. Out of these, 68 NABL accredited laboratories have been authorized by Food Safety and Standards Authority of India. State Governments have set up 72 food testing laboratories. These laboratories are equipped to check the quality of food articles as per standards prescribed under the Food Safety and Standards, Rules/Regulations for various parameters [6].

Four referral food laboratories have been established under the Act which works as appellate laboratories for the purpose of analysis of appeal samples of food lifted by the food inspectors of the states/union territories and local bodies and imported food samples.

All types of food samples like for surveillance, sample sent by purchaser and Food Business Operators are analyzed in the above laboratories. A purchaser and Food Business Operator can send the samples to state public laboratories for analysis of sample. However a food safety officer can send samples to state/regional/district public laboratories and Food Safety and Standards Authority of India Authorized laboratories only for analysis to check safety of food as per standards prescribed in the food safety and standards regulation and in case of a dispute he shall send the sample to referral laboratory whose decision shall be considered final [4,5, 6,9].

#### 2.4.1. Procedure of sampling

Procedure for sampling and analysis:

Any food Inspector can enter and inspect any place where any article of food is manufactured or stored for sale or stored for the manufacture of any other article of food for sale or exposed or exhibited for sale or where any adulterant is manufactured or kept and take samples of such article of food or adulterant for analysis. Notice will be issued by the Inspector in writing then and there to the seller indicating his intention. Four samples are taken and the signature of the seller is affixed to them. One sample is sent for analysis to food Analyst under intimation to the Local Health Authority.

Regulation 2.3.1 prescribes the approximate quantity of different food sample to be sent to the food analyst/Director for analysis. It also prescribes that after test or analysis, the test report shall be signed by the Director of referral laboratory or food analyst in the standard format. i.e., Form A. Certificate of Analysis by the referral food laboratory, and Form B, format of report of food analyst is attached to these regulations. It also prescribes the fees payable in respect of the certificate of analysis. Subsection (4) of these regulations defines the use of preservatives in case of samples of any milk, dahi, khoya, candy, or paneer based products prepared foods etc. It also prescribes the standard and limit of the preservative for preservation of samples [6].

Regulations of laboratories and food analysis provides analysis of food, recognition and accreditation of food laboratories, research institution and referral laboratory, food safety audit for the purpose of food safety and checking compliance with safety management system, food analysts with its functions, procedures for sampling and analysis of food for their regulation focusing light on sample analyses procedures and functioning of notified laboratory like Central Food Laboratory Kolkata, Ghaziabad, Mysore, Pune etc. to analyse internationally imported food articles and referral laboratories like referral food laboratories Kolkata, Ghaziabad, Mysore, Pune etc. to analyse food articles as per local areas decided by central government (FSSAI) [4,5,6,9].

### 3. Conclusions

Apart from the harmonization of laws relating to food quality and standards with established international norms, FSSA 2006 aims at regulating food hygiene and safety laws in the country in order to systematically and scientifically develop the food industry. Thus, the food processing industry may see FSSA as a mixed blessing but the practical application of this legislation, being at its nascent stage, will require some time to come into full

force. Better auditing, Food safety management system (FSMS), traceability, recall and other systems in place under the new act which will help in curbing food adulteration. The representative of the consumer organizations are members of the food Authorities and central advisory committee. The consumer can get their food analyzed on payment of fees. In case of injury or death of consumer there is a provision for compensation to the consumer by Food business operator, Consumer can use the food safety helpline for any queries related food and its safety. The use of biotechnology can lead to improved food safety by reducing pesticides use and enhancing the post harvest keeping quality of products, however may pose health risks due to possible transfer of toxins and allergens between species. For adulteration controls, integrated approach through statutory and regulatory authorities, industry, scientific community, consumer guidance, voluntary agencies, proper counseling and IEC (Information, Education and Communication) materials can play a vital role. The act should have a compulsory provision for black-listing of the companies or even publication when held guilty of the offence and Food recall should be issued in the media to inform the citizens and make them aware about the unsafe food.

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