

## “Food adulteration” causing the base in mahastrotas for the various medical emergencies w.s.r. to Agadtantra.

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### Abstract

**Background:** Adulteration is a legal term meaning that a food product fails to meet the legal standards.

Adulteration often considered as a one of the major problems of today's life and its ill effects on *Mahastrotas* from their daily meal items. A survey conducted by the Indian Council of Medical Research (ICMR) found high levels of pesticide residues in bovine milk and metals like arsenic, cadmium and lead in infant canned products and turmeric. (Shrilakshmi, 2001)

**Material and Methods:** Through review of literature has taken regarding food adulteration, it's health hazards; preventive and curative aspects of the solution of this problem.

“Food adulteration” is basically lowering the quality of food for sale either by the admixture or by the substitution of inferior substances or by the removal of some valuable nutritious ingredient; sometime toxic chemicals are

also added which can be hazardous for the health. Common immediate symptoms of food adulteration are fever, vomiting, diarrhea, pain in abdomen, nervous debility, paralysis and if left untreated, death.

**Conclusion:** Food is the basic necessity of life, should be pure, free from any type of adulteration. There is a need to increase awareness pertaining to recognition of food spoilage, symptoms of food-borne disease and action to be taken after detecting food adulteration/poisoning. Knowledge about simple household techniques to detect adulteration should get generalized. . With the view of *Agadtantra*, the acute or chronic toxicities, caused by food adulteration can be treated either with *Dooshee vish chikitsa* or with *Garvish chikitsa*(according to the type of adulterant) after proper *Sanshodhan* of body by *Panchkarma* procedures.

**Keywords :** Adulteration, Legal standards, Hazards, Toxic, Mahastrotas.

## INTRODUCTION

Food adulteration is basically lowering the quality of food for sale either by the admixture or by the substitution of inferior substances or by the removal of some valuable nutritious ingredients.

We people are not enough educated or aware of the adulterated food while choosing 'what to buy'. Punjab has earned the distinction of being second state in the country to offer adulterated food. As per the Food Safety and Standards Authority in India, 1458 food samples were found to be adulterated, unsafe and misbranded. Uttar Pradesh

with 4119 failed food samples has the poorest record.

### Products prone to Adulteration in India

Adulteration is done to every possible product so that the profit can be maximized. People are so money minded that they do not think about the health of their fellow citizens. **In India**, mostly adulteration is found in milk, ghee, vegetable oil, masala powders and spices, ice creams, honey, coffee, and tea leaves, flour, and food grains, sweets, juices and fruits etc.

**Food Item -- Adulterant (table)**

Food Item	Adulterant
Milk	Water, chalk, urea, caustic, soda, detergent
Khoya sweets chenna	Paper, refined Oil, skimmed Milk Powder. Silver Vark Containing Aluminium
wheat and other grains	ergot (fungus –extremely dangerous)
Ice cream	Washing powder, pepper oil (pesticide), ethyl acetate (affecting lung, kidney, heart), one type of gum for stickiness obtained from obtained by boiling animal parts like tail, nose etc.
Pulses	Metanil yellow (neurotoxic)
Chili powder	Brick powder red oxide of lead (carcinogenic)
Vegetables And Fruits	malachite green (carcinogenic), wax, oxytocin saccharin, calcium carbide, copper sulphate
Coffee, Tea	Tamarind/ date seeds, colored leaves (even not edible)
Honey	Molasses suger, starch Spices –metanil yellow (neurotoxic), red oxide of lead (carcinogenic)
Suger	Chalk powder

In **Modern science**, Bioaccumulation refers to the accumulation of substances, such as pesticides, other organic and inorganic chemicals in an organism. Many bio accumulative chemicals are fat soluble so that they tend to reside primarily in fat deposits or in the fatty substances in blood and also in fat rich breast milk; may also deposited elsewhere including bone, muscle, or the brain.

Same type of poison accumulation is discussed as *Doosheevish* in **Ayurved**. *Aacharya Sushrut* stated that a part of

*Sthawar* (Inanimate), *Jangam* (Animate) or *Krutrim* (Artificial) poison, which accumulated and cannot be excreted from body completely due to its chronic and cumulative nature or becomes less potent after digestion or counter action of antidotes and accumulate in the body for a prolong period and vitiating the body slowly is called *Dooshee Visha*.

Some preservatives, colouring agents, some organic inorganic compound of heavy metal, some chemicals used as adulterants act as *Doosheevish* (cumulative poison). When such poisons

enter the body over a long period, even in low doses, many ultimately cause harm when their concentration in different tissues reaches high level due to their cumulative effect.

*Vagbhatacharya*, in *Ashtang Hridayam*, has described, the waste materials of animals, *Viruddha aushadhi bhasma* and less potent poisons combinations are called as *Garvisha*. Adulterants of this types should be considered as the *Garvish*.

In *Charak Samhita*, there is statement that cruel ladies can mix their sweat, menses, waste material of the body in food given to their family for overpowering them. This is also the food adulteration example which has described as *Garvish*.

Such correlations by comparing ancient and current era, provide the sight for the solutions, we *Aayurvedacharya* have, for the worldwide problem of Food Adulteration and it's health hazards. As the intake, *absorbition* and assimilation of food are the functions of *Mahastrotas*, the poisonous effects of adulterated food starts from *Mahastrotas*, causing the base for the various medical emergencies.

Thus, the rationale of this study is to glance light on the severity of Food Adulteration Problem and the scope for research in treating these toxicities with *Agadtantra* view as described by our great *Aachary*.

#### **Aims and Objectives:**

- 1) To evaluate severity of food adulteration problem.
- 2) To discuss, evaluate and elaborate Food Adulteration causing the base in *Mahastrotas* for the various medical emergencies.

- 3) To glance light on the scope for research in treating food adulteration toxicities with the view of *Agadtantra*.

#### **Material and Methods :**

Through review of literature has taken regarding food adulteration, it's health hazards; preventive and curative aspects of the solution of this problem.

#### **Literature review :**

**Definition of Food Adulteration** – Food is considered to be adulterated if:

- It contains any poisonous ingredients.
- Any valuable or necessary constituent has been wholly or in part abstracted or any cheaper substance has been substituted wholly or in part.
- It is colored, and for colouring that material if non permitted colours are used.
- It has been prepared, packed or kept under insanitary conditions.
- It's quality is below the standard.
- It is obtained from diseased animal.
- It is unusual bigger in size than it needs to be.

#### **Causes of Food Adulteration:**

- Traders' profit motivation: made a portion of the business strategy.

By making the fruits and vegetables to look attractive and fresh, wax coating or dipping in chemical water such as copper sulfate to improve sales.

- Illiteracy of the general public: lack of awareness of healthy food consumption.
- Lack of government initiatives.

- High population demands Increased food demand of the population and its changing trends.
- Presently, field-producing vegetables are irrigated with wastewater that includes detergents, human feces, manufacturing waste with high toxic heavy metals concentrations.
- In many confectionery products, sucralose is used as a sweetener instead of sucrose, which is dangerous to health.

#### Types of food adulteration:

**Intentional adulteration:** Adding adulterants intentionally with the purpose of increasing profit.

**Incidental adulteration:** due to negligence, absence of sufficient facilities, adulterants are discovered in food.

**Metallic adulteration:** purposely or accidentally adding metallic materials such as lead from water and mercury from effluents.

#### Effects of Food adulteration on Mahastrotas :

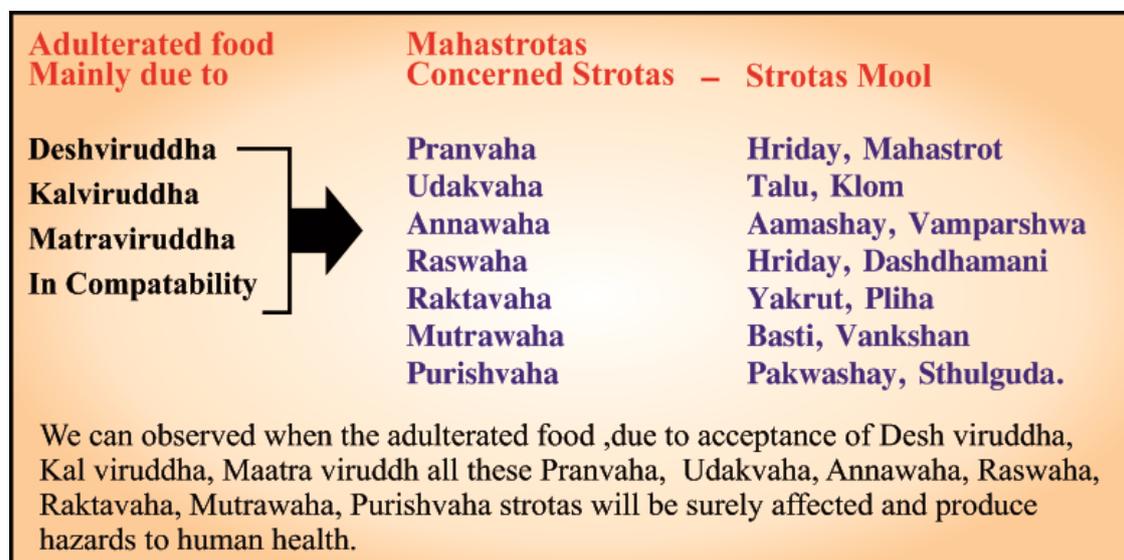
Starch is t used as adulterant in flour, milk, sweets, honey; all are daily needs, needed

must in healthy as well as sick and weak persons.

For the ordinary healthy stomach such a change in the food would be of no consequence whatever, but we can readily imagine cases where, with the disturbed digestion and the imperfect secretion of enzymes which produce fermentations characteristic of the digestive process, the increase in the amount of starch would produce a positive injury.

The adulterant “glucose of commerce” is a mixture of dextrose and *dextrine* with a small quantity of maltose, produced by the artificial hydrolysis of the starch under the influence of an acid. The starchy foods are replaced by artificially digested starch are deprived of a part of their functions and must suffer from disuse; as it is a well established principle that the disuse of organs tends to produce atrophy and eventually functional paralysis. Hence, the use of predigested starch is prejudicial to the health of the digestive organs as it affects *koshthagni*.

In *Charak Samhita*, *Charakacharya* had described *Strotas* and their *mool*.



**Diseases due to Food adulteration:**

Common immediate symptoms of food adulteration are fever, vomiting, diarrhea, pain in abdomen, dysentery, food poisoning, nervous debility, paralysis and if left untreated, death.

Over a period of long time, foodstuffs laced with some toxic substances can cause some cancers, hormonal imbalances,

kidney damage, liver disease or stunt growth, joint pain, Heart diseases .

The minerals, chemicals and poor quality added to the food are responsible for these health conditions which we might have to undergo in future. Some adulterated foods can even lead to abortion or brain damage. Young children consuming adulterated food for long will have issues in conceiving.

**Management of Complication of Dooshee Visha :**

ज्वरे दाहे च हिक्कायामानाहे शुक्लसङ्क्षये । शोफेऽतिमारे मूर्च्छायां हृदयेऽपि च ॥  
उन्मादे वेपथी चैव ये चान्ये स्युरुपद्रवाः । यथास्वं तेषु कुर्वीत विषधैरीश्वरैः क्लियाम् ॥  
(सु.क. २/५३-५४)

**Discussion :**

Safe food is fundamental to all consumers. Getting safe food is the right of every consumer as recognized by the WHO (World Health Organisation) and by the Food and Agriculture Organization in 1992. Although the proverb 'You are what you eat' implies that consumers must be responsible for what they eat, consumers alone are not able to ensure that what they eat is safe. Legislation is needed to ensure that food supplied to consumers meets safety standards. In India, **Food Safety and Standards Act, 2006 (FSSA), 2011(FSSA)** regulates the standard of food product. Apart from these laws and regulations ,there are provisions under the **Indian Penal Code, 1860,Ch.xiv,section 272 and 273. FSSAI** is the most important authority which supervises and regulates food safety and standards.

The best steps to avoid food adulteration is to start cultivating ourselves, which we can practice in order to safeguard our health from food adulteration.

- Always go for branded product, especially the ones with ISI mark. Still you doubt in its quality, file a complaint or inform company authorities. Only if we consumers start reacting, we can put an end to this solution.
- Try to buy vegetables and fruits from organic market. We all have a limited space but in balconies, courtyard or terrace few easily growing veggies can be cultivated, it can help us a lot. Instead of buying ready-made *masala* powders, try to make it ourselves.
- Though the conservation of the public health is a duty not peculiar alone to the medical profession, society expects functions of the physician for information on all subjects which pertain to health and longevity. Obviously Physician should be the teacher of hygiene for the more beneficent purpose of conserving the public health.

(d) With the view of *Agadtantra*, the acute or chronic toxicities, caused by food adulteration can be treated either with *Dooshee vish chikitsa* or with *Garvish chikitsa* (according to the type of adulterant) after proper *Sanshodhan* of body by *Panchkarma* procedures. *Charakacharya* described *Rasayan chikitsa*, very useful for the immunity improvement.

(e) We consumers should get educated ourselves about the simple tests for detecting food adulteration.

### Conclusion:

The desire to live to “a green old age” should be accompanied by the effort to make this life as free from disease and sufferings as possible. Among the many factors which have a great influence upon the health, there is none more potent than the food. And if food is adulterated, we are inviting many diseases. So awareness about the food adulteration is very necessary for conservation of public health. Everyone should follow above steps to safeguard their health from food adulteration.

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### Cite this article:

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Ayurline: International Journal of Research In Indian Medicine 2019; 3(5) : 1 - 6