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# Hazards effect of pesticides on raw materials, food and fruits and adverse effects on human health

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## ABSTRACT

*Acharya Sushruta* has described *Agadtantra* as the branch of Ayurveda, which deals with bites of poisonous animals such as snakes, insects, spiders, rats, etc and their treatment and symptoms of different poisons, their combinations and their treatment. Increased popularity of herbal medicines has also brought concerns and fears over the quality, efficacy and safety of the raw materials including food and fruits. Now a days that some of the people but most of the foods contain highly contaminated pesticides residue on them., it may be due to inorganic cultivation of food and crops. Most of the fruits and vegetables bought from local market are loaded with chemicals and pesticides. These are primarily used by the farmers during the farming to save the fruits and vegetables from pests and harmful insects. Toxic residues of agricultural chemicals entering the human diet are of major concern today. Pesticides are very harmful to human health and it can cause serious illnesses and death in humans.

**Key words:** *Agadtantra, Pesticides, Vegetables, Insects.*

## INTRODUCTION

Ayurvedic Toxicology is a special branch of *Ashtang* Ayurveda and it is one of the eight classical disciplines of Ayurveda, having its own importance in Ayurvedic *Chikitsa* system. Ayurvedic Toxicology was also called *Danstrachikitsa* by *Vagbhatacharya*, *Jangleechikitsa* by *Kautilya Vishagara Vairodhik Prashamanam* by *Charakacharya*, and *Agad tantra* by *Sushrutacharya*. *Sushruta* has described *Agadtantra* as the branch of Ayurveda, which deals with bites of poisonous animals such as snakes, insects, spiders, rats, etc. and their

treatment and symptoms of different poisons, their combinations and their treatment. *Ayurvedic Vishaparikshana* i.e. Ayurvedic toxicological study which includes different types of examinations, e.g. *Panchamahabhoot Pariksha*, *Drava Pariksha*, *Agnipariksha* and animal tests for detection of poison.

## CONCEPT OF PESTICIDES

A pesticide is any chemical which is used by man to control pests. The term "cide" comes from the Latin word "to kill." The community think that eating well gives our body the essential nutrients that it requires when one consume fresh fruits and vegetables. However, it was seen amazement, now a days that some of the people but most of the foods contain highly contaminated pesticides residue on them., it may be due to inorganic cultivation of food and crops. Pesticides includes various hazardous chemicals which are used to protect the crops, fruits, vegetables from insects, germs and rodents when the plants are growing up. Pesticides are chemical substances used to kill pests that might damage the crops and fruits. It is used in plenty by farmers, especially in remote areas. Residual amount of these chemicals is present on the

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food, sometimes poisonous particles lodges on food, fruits. The deposited part of pesticide residue cannot easily be removed with plain water or washing methods. If someone consumes a fruit, the pesticide residue goes into the body as they get stuck and can make harmful effects on health.

### Pesticides & its various types

Pesticides comprises all ingredients that are used to destroy, prevent, reduce pest organisms. Insecticides, herbicides, fungicides and rodenticides are some of the more well-known pesticides.

Chemical pesticides can be divided into four main categories;

#### 1. Organophosphate Pesticides

These are most poisonous pesticides class. Most fall into the insecticide category, and they are the most commonly used pesticides today. Organophosphates distresses the nervous system by troublemaking the enzymes that regulates acetylcholine, a neurotransmitter.

#### 2. Organochlorine Insecticides

Due to environmental and health risks, this category has been removed from the market. It includes Dichloro-Diphenyl-Trichloroethane (DDT) and chlordane.

#### 3. Carbamate Pesticides

These pesticides are similar to organophosphate pesticides, affect the nervous system of insects. They are widely used in gardens, and the most common form is carbaryl.

#### 4. Pyrethroid Pesticides

Pyrethroid pesticides utilize synthetic versions of pyrethrin. Pyrethrin is a pest repellent used in gardens, pyrethroids are used on pets and livestock, as well as transport vehicles.

They are typically less toxic to mammals (including humans), because they are deactivated by metabolic processes.

### Hazards effect on Human health

Pesticides generally enter into body during applying, mixing, or during farming spray. It can enter in following ways-

- Through the skin (dermal),
- Through the lungs (inhalation), or
- By mouth (ingestion).

The utmost risk to our environment and health comes from the chemical pesticides. Farmers and workers or labourer persons who use chemical pesticides regularly are at greatest risk for achieving toxic levels in their bodies.

Most of the fruits and vegetables bought from local market are loaded with chemicals and pesticides. These are primarily used by the farmers during the farming to save the fruits and vegetables from pests and harmful insects. Several reports and studies done by various institute suggest that high levels of pesticides and various chemicals in food, vegetables can lead to the development of diseases such as cancer, kidney and lung diseases. Children have developing various infections and diseases. Any exposure to these high chemical residues can lead to childhood cancers, mental health problems such as autism and attention deficit hyperactivity disorder.

However, the residue pesticides and chemicals stay on the surface of the fruits & Vegetables. Rinsing with plain water doesn't remove the harmful effects of pesticides on fruits and vegetables. By cooking or eating it mixed with food and reach into stomach and created the various illness in our body.

Rule 44-AA of the PFA Rules, 1955 prohibits the use of carbide gas for ripening of fruits. It is declared in this rule that, no person shall sell or offer or expose for sale or have in his premises for the purpose of sale under any description, fruits which have been artificially ripened by use of acetylene gas, commonly known as carbide gas.

Pesticides can leave adverse effects on the nervous system. Some harmful pesticides can cause several

hazardous diseases like cancer, liver, kidney, and lung damage. Certain pesticides can also cause loss of weight and appetite, irritability, insomnia, Fatigue, Skin Irritations, Nausea, Vomiting, Breathing Problems, sometimes death too.

Pesticide exposure can cause a range of neurological health effects such as memory loss, loss of coordination, reduced speed of response to stimuli and behavioural disorder and dermatological problems. The pesticide residue found in fruit and vegetables include residues of both banned (Aldrin, Chlordane, Endrin, Heptachlor, Ethyl Paration, etc.) and restricted pesticides for use in India (DDT, Endosulfan, etc.). Heavy metals also cause adverse effect in human metabolic system, skin diseases, heart problems, etc.

## DISCUSSION

The use of pesticides is a standard practice in the agricultural production of food products. Farmers of the ancient days relied on the use of organic farming techniques and methods in cultivating their crops. As commercial farming slowly increased popularity over organic farming, the natural methods were replaced with the ones using chemicals for fertilizers, pesticides and weed killers. The potential of higher yield in a shorter period of time is the selling point of these chemicals. But heavy dependence on chemicals is starting to take its ring on the vast farmlands and on the people's health. Toxic residues of agricultural chemicals entering the human diet are of major concern today. According to studies and researches, pesticides have grave effects on children and these can be measured in several ways. Children's internal organs are still developing and maturing, so the effects can be seen and measured at present and in the future when they have grown up.

Some health effects from pesticide exposure may occur as you are being exposed and some symptoms may occur several hours, days or years after exposure. Some symptoms of pesticide exposure will go away as soon as the exposure stops. Others may take some time to go away. Women who are pregnant

or breast-feeding should check with their doctors before working with pesticides as some pesticides may be harmful to the foetus (unborn baby) or to breast-fed infants. When a pregnant woman eats vegetables contaminated with pesticides, the foetus can be exposed to the harmful chemical and cause birth defects. Pesticides can also be neurotoxins which can make a person feel light-headed, dizzy and confused, and it may reduce body coordination and ability to think in the short run. In the long term, these can result in reduced mental coordination and learning capacities.

## CONCLUSION

Pesticides are very harmful to human health and it can cause serious illnesses and death in humans. These problems arise from various circumstances, either direct or indirect human contact with pesticides. It will be good to start organic farming to maintain good hygiene in future with less use of these pesticides for farming.

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