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Original Research Paper

Ayurveda

"A LITERATURE REVIEW OF THE METHODS TO PREVENT PESTICIDE CONSUMPTION FROM FOOD."

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ABSTRACT

The world we dwell in today is a polluted one. The fruits and vegetables are also polluted by the liberal use of pesticides to live up to their growing demand of this age of green revolution. In India, illiterate farmers and workers use these poisonous chemicals blindly and abundantly. They are unaware of the biological and health related hazards of these poisonous chemicals and pesticides. These fruits and fruit-vegetables absorb some of the pesticides in the skin and pulp. By intaking these food products many harmful chemicals can enter into an individual's body and cause acute, chronic or cumulative toxicity by giving rise to local as well as systemic problems.

Here arises the need of the solvents which may nullify or reduce toxic residues from these fruits and fruit-vegetables by removing them during washing.

The Food and Agricultural Organization (FAO) and World Health Organization (WHO) listed acceptable daily intake (ADI) values for many pesticides, food additives, colours, and preservatives etc. as the acceptable limits in human food. This article focuses on various methods for controlling Consumption of pesticides from foods.

KEYWORDS : Pesticide consumption prevention.

INTRODUCTION:

Methods to prevent pesticide consumption

To reduce the amounts of pesticide residues in food, consumers can wash, peel and cook their food; trim the fat from meat and eat a variety of food to avoid the recurrent exposure to a pesticide typically used on a given crop. However, many pesticides are systemic, which means they penetrate into the fruit and vegetable itself and cannot be washed off. Many pesticides are also by design created to be rain-proof.

Strawberries and tomatoes are the two crops with the most intensive use of soil fumigants. They are particularly vulnerable to several types of diseases, insects, mites and parasitic worms.[1]

Measures to combat pesticide hazards

- *Pesticide safety education* and *pesticide applicator regulation* are designed to protect the public from pesticide misuse but do not eliminate all misuse.
- *Reducing the use of pesticides* and *choosing less toxic pesticides* may reduce risks placed on society and the environment from pesticide use.
- *Integrated pest management*, the use of *multiple approaches* to control pests is becoming widespread and has been used with success in several countries. IPM attempts to recognize the more widespread impacts of an action on an ecosystem, so that natural balances are not upset.
- *New pesticides are being developed*, including biological and botanical derivatives and alternatives that are said to reduce health and environmental risks.
- Applicators are being encouraged to consider alternative controls and adopt methods that reduce the use of chemical pesticides.

Creating pesticides that are targeted to a specific pest's life cycle can be more ecofriendly. E.g. potato cyst nematodes emerge from their protective cysts in response to a chemical excreted by potatoes. They feed on the potatoes and damage the crop. A similar chemical can be applied to fields early, before the potatoes are planted, causing the nematodes to emerge early and starve in the absence of potatoes.[2]

Alternatives to pesticides[3]

Nowadays various alternative to pesticides available and include

- -Methods of cultivation,
- -Use of biological pest controls (such as pheromones and microbial pesticides),
- -Genetic engineering and methods of interfering with insect breeding.
- -Application of composted yard waste has also been used as a way of controlling pests.

These methods are becoming increasingly popular and often are safer than traditional chemical pesticides. In addition, EPA is registering the use of reduced-risk conventional pesticides in increasing numbers, sprayed on mixing with hot water at the same cost as chemical pesticide spraying.

Release of other organisms that fight the pest such as natural predators or parasites of the pests.

Biological pesticides based on entomopathogenic fungi, bacteria and viruses cause disease in the pest species can also be used.

Interfering with insects' reproduction can be accomplished by sterilizing males of the target species and releasing them, so that they mate with females but do not produce offspring. This technique was first used on the screwworm fly in 1958 and has since been used with the medfly, the tse-tse fly and the gypsy moth. However, this can be a costly, time consuming approach that only works on some types of insects.

Another alternative to pesticides is the thermal treatment of soil through steam. Soil steaming kills pest and increases soil health.

In India, traditional pest control methods include using Pancagavya, the "mixture of five cow products." The method has recently experienced resurgence in popularity due to use by the organic farming community.

Efficacy of alternatives:

Evidence shows that alternatives to pesticides can be equally effective as the use of chemicals. Sweden has halved its use of pesticides with hardly any reduction in crop yield. In Indonesia, farmers have reduced pesticide use on rice fields by 65% and experienced a 15% crop increase. A study of maize yields in Northern Florida found that the application of composted yard waste with high carbon to nitrogen ratio to agricultural fields was highly effective in reducing the population of plant-parasitic nematodes and increasing crop yield, with an increase ranging from 10% to 21%. The observed effects were long-term, often not appearing until the third season of the study.

The fruit-vegetable to be washed in the study is Tomato which is often sprayed with variety of pesticides but mainly organophosphates are used.

DISCUSSION:

Prevent pesticide consumption from food by following methods:[4]

1. Buy organic and locally grown fruit and vegetables.
2. Wash fruits and vegetables before eating.
3. Know which fruits and vegetables have higher levels of pesticide residue.
4. Grow your own produce.
5. Use non-toxic methods for controlling insects in the home and garden.
6. Have a 'no shoes' policy in your home.

CONCLUSION:

As per above discussion we can conclude that

1. Companion planting: planting certain types of plants will keep some pests away.
2. "Soft" chemicals: soap, stinging nettles, and rhubarbs provide excellent alternatives to pesticides.
3. Commonly used methods for cleaning this vegetable are washing with tap water, warm water or salt water. In Āyuṛved some viṣaghna dravya are mentioned which are easily available and can be used in household practices.

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