STUDIES ON PESTICIDES AND INSECTICIDES IN FRUITS AND VEGETABLES OF HANAMKONDA AREA

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CERTIFICATE

This is to certify that the project report entitled "STUDIES ON pesticides and insecticides in fruits and vegetables of Hanamkonda area" submitted to head department of chemistry Kakatiya Government College, Hanamkonda it was carried out by the following students under my guidance. B.Kalyani , G.Vamshi ,M.Roshini , M. Keerthi Bhavani , B. Anjali , Sk.Nazeer ,.Abhinaya , U. Sai Vamshi ,.Lokesh , V.Rakesh .

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Abstract

To study the presence of insecticides or pesticides (Nitrogen Containing) in various fruits and vegetables

Theory

In the decade, there has been a tremendous increase in the guilds of various crops to meet the demand of our growing world population. This great feat has been achieved by adopting new methods of farming and by expensive use of fertilizers and insecticides.

A pesticide is any substance or a mixture of substance intended for preventing, destroying, repelling or mitigating any pest. A pesticide may be a chemical substance, biological agent antimicrobial disinfectant or device used against any pest. Pests includes insects, plant pathogens insects, molluscs, birds, mammals, fish nematodes and microbus that destroy property, spread disease or are a vector for disease or cause a nuisance. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the premature fall of fruit and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport.

History

Since before 20BC, humans have utilized pesticides to protect their crops. The first known pesticide was elemental sulphur dusting used in ancient summer about 4500 years ago in ancient Mesopotamia. By the 15th century, toxic chemicals such as arsenic, mercury and led being applied sulphate was extracted from tobacco leaves for use an insecticide. The 19th century saw the introduction of two more natural pesticides, pyrethrum, which is derived from chrysanthemums, rotenone which is derived from the roots of tropical vegetables.

In 1940s manufactures began to produce large amounts of synthetic pesticides and their use became wide spread. Some sources consider the 1940s and 1950s to have been the start of the “Pesticideera” Pesticide use has increased 50 field since 1950 and 2.3 million tonnes of pesticides are now used each year.

In 1960s it was discovered that DDT was preventing many fish eating birds from reproducing, which was a serious threat to biodiversity. The agricultural use of DDT is now leaned under the Stock Holm convention, but it is still used in some developing nations.

Classification

Pesticides are classified according to the pests they control. The four main types are

(i) Herbicides
(ii) Fungicides
(iii) Rodenticides
(iv) Insecticides.

Herbicides:-

Herbicides eliminate plants that grow where they are not wanted. Farmers use them to reduce weeds in public areas such as parks and ponds. People use herbicides in their yards to get rid of crab grass, dandelions and other weeds.

Fungicide:-

Certain fungi cause disease and may infect both plants and animals, including human beings. Fungicides control plant diseases that infect food-crops-wood used for building houses in often treated with fungicides to prevent dry not.

Rodenticides:-

Rodenticides are used to control rats and other rodents that destroy stored food. Rats also carry bacteria that cause such disease as rabies and typhus.

Insecticides:-

Farmers use insecticides to protect their crops from insect damage. In urban areas, public health officials use them to fight mosquitoes and insects that carry germs. People use insecticides indoor to control pests and ants and cockroaches

Alternatives in Pest Control.

Continuing problems arising from the wide spread use of board spectrum insecticide creates a dilemma how best to control pest and at the same time how to remove environmental hazards. Restrictions on use of pesticides and the substitution of pests on controlling use of pesticides is by far the best method. Restrictions can mean simply more limited use or total banning or chemicals. Many countries have limited or banned the use of DDT and other chlorinated hydro carbons insecticide but this group of chemicals is widely used mainly in the third world countries. The US department of agriculture has campaigned for the safe use of pesticides but from environment point of view no broad spectrum biocide can be used.

Traditional insecticides such as pyrithrium or non persistent chemicals such as carbonate sevin are now very widely used and totally new types of pest control are useful in particular cases. For example the autodial (sub destroying) techniques make use of sterilized snales population. Large – scale rearing, radiation sterilizing and release programme are now major effects of the US Department of agriculture and are highly effective in restricted situations. Control of insects by synthetic growth hormones is also effective in limited situations but is better described as on active area of biological research than a general alternative to pesticide use. The technique use extracts of juvenile hormone or their synthesized mimics

Requirements

1. **Mortar and pestle**

2. Beakers

3. **Funnel**

4. Glass rod

4. filter paper

5.china dish

5. water bath

6. Tripod stand

6. fusion-tubes
7. knife
8. test-tube

Samples of fruits & vegetables

1. **Alcohol**

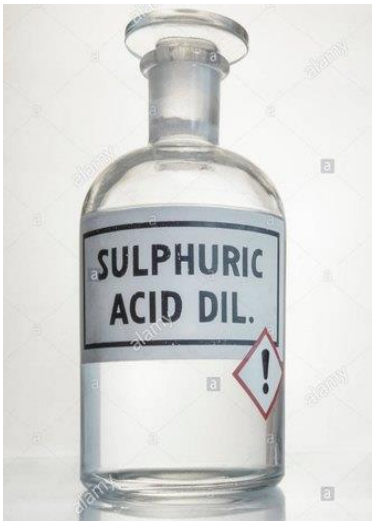
2. Sodium metal

3 **Ferric chloride solution**

4.Ferrous sulphate crystals

5.Distilled water

6.Dilute sulphuric acid.



Chemistry Experimental Procedure

1. Take different kinds of fruit and vegetables and cut them into small piece separately.
2. Transfer the cut piece of various fruits and vegetables in mortar separately and crush them.
3. Take different beaker of each kind of fruits and vegetables and place the crushed fruit and vegetables in these beakers, and add 10ml of alcohol to each of these. Stir well and filter collect the filtrate in separate china dishes.
4. Evaporate the alcohol by heating china dishes one by one over water bath and let the residue dry in an oven.
5. Heat a small piece of dry sodium in a fusion tubes, till it melts. Then add one of the above residues from china dish to the fusion tube and heat till red hot. Drop the hot fusion tube in china dish containing about 110ml of distilled water. Break the tube and boil the contents of the china dish for about 5 minute to cool and filter solution. Collect the filtrate.
6. To the filtrate add 1ml freshly prepared ferrous sulphate solution and warm the contents. Then, add 2-3 drops of ferric chloride solution and acidity with the dil.

Hydrochloric acid if a blue or green precipitate or colouration is obtained, it indicated the presence of nitrogen containing insecticide.

7. Repeat the test of nitrogen for residue obtained from other fruits and vegetables and record observation.

Students preparing sample for Lassaigne's test

Observation

S.No	Name of fruit/vegetable	Test for the presence of nitrogen	Presence of insecticide/pesticide
1	Chilliies	+ve	Yes
2	Grapes	+ve	Yes
3	Potato	+ve	Yes
4	Brinjal	+ve	Yes
5	Guava	- ve	No
6	Cucumber	- ve	No
7	Green leafy vegetable	+ ve	Yes

Group of students with collected fruits &vegetables

Conclusion:

Thus from the above experiment we conclude that the fruits and vegetables that we consume especially grapes, and potato, chillies, brinjal, green leafy vegetables. Contain nitrogenous insecticides and pesticides.

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