

CHEMISTRY – 302 UNIT – III [B] INSECTICIDES

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Que. What are insecticides? Give the classification of insecticides on the basis of their mode of application or action.

Ans. Insecticides: Insecticides are chemicals which are used for killing or control of diseases transmitted by the insects by contact with the cuticle, by oral ingestion of stomach poisons or by fumigant actions through the air.

A) According to mode of application insecticides have been classified into the following classes.

- 1) Stomach or Internal Insecticides.
- 2) Contact or External Insecticides.
- 3) Fumigants.
- 4) Attractants.
- 5) Repellents.

1) Stomach or Internal Insecticides:

Those insecticides which are eaten by insects are known as stomach insecticides.

They are applied in the following manner;

- i) The food of the insect is covered with a thick layer of poison so that the insect cannot feed without ingesting it.
- ii) The poison is mixed with an attractant substance from which insects are eaten.
- iii) Finally divided powder of poisons is sprayed over the path of insects.

2) Contact or External Insecticides:

Those insecticides which kill the insects by means of external contact are known as contact insecticide. It may be applied directly to the insects or as residues to plant surface, animals or other places visited frequently by insects, e.g. parathion.

3) Fumigants:

Those insecticides which exert their action in the gaseous state are known as fumigants. Fumigants are effective against all insects since the gas enters the insect body through the respiration. B.H.S. etc. e.g. Nicotine, CS₂.

4) Attractants:

Those insecticides which attract insects through stimulation. They may be food, sex attractions, i.e. Amyl Solioylate.

5) Repellents:

These are mildly poisonous which makes the food unattractive for the insects, which are used for termites and other house-hold insects.

B) In Addition to above classification the insecticides may be classified by their chemical nature.

- 1) Inorganic Insecticides.
- 2) Natural Organic Insecticides.
- 3) Synthetic Organic Insecticides.

1) Inorganic Insecticides:

Generally they act as stomach insecticides i.e. copper aceto arsenate, sulphur and its compounds, etc.

2) Natural Organic Insecticides or Plant Insecticides:

They largely acts as contact poisons some plant materials such as roots, stems, leaves, or flowers are first dried and then finely ground. These are used as such or along with other toxicant i.e. Nicotine.

3) Synthetic Organic Insecticides:

They have contact and stomach poison action and are sometimes used as fumigants.

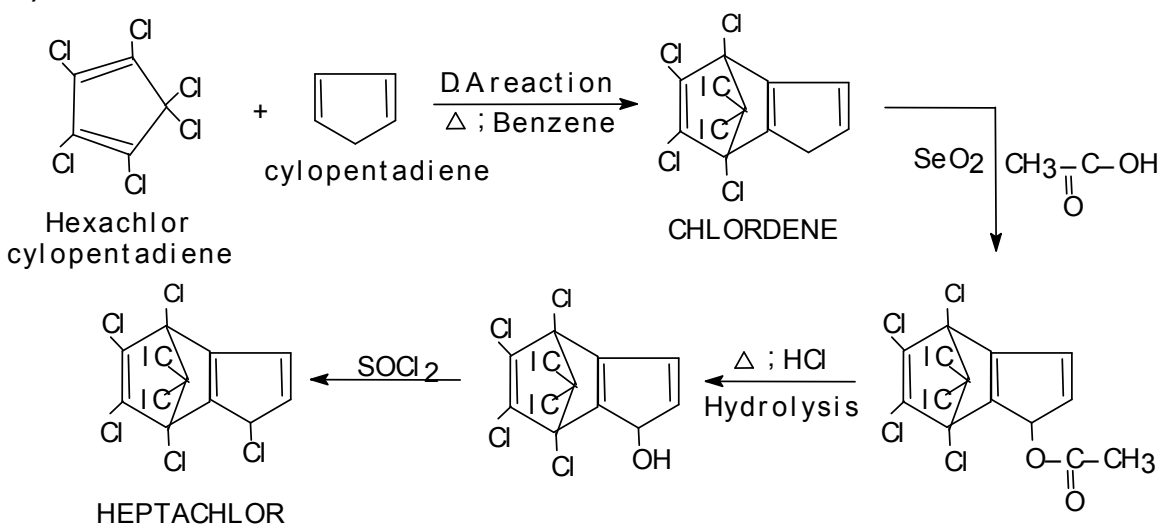
These are sub-classified into three categories.

a) Halogen Derivatives : DDT

b) Nitrophenols : 2,4 Dinitro O-Cresol

c) Organo Phosphorous : Malathion

1.) HEPTACHLOR:



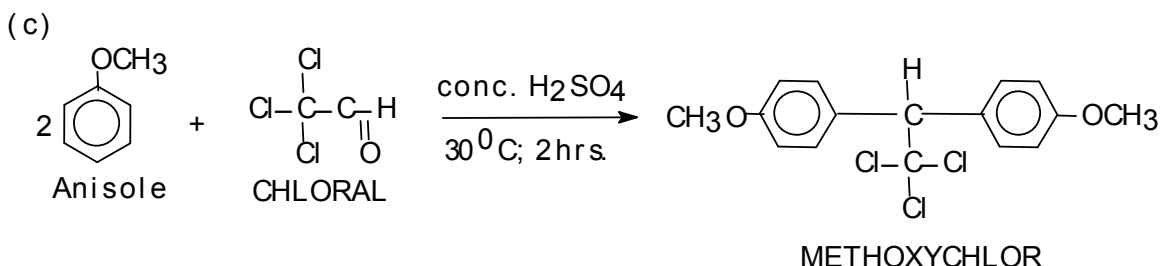
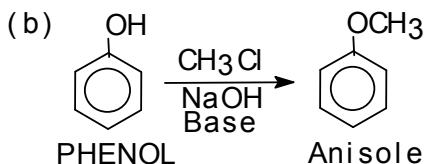
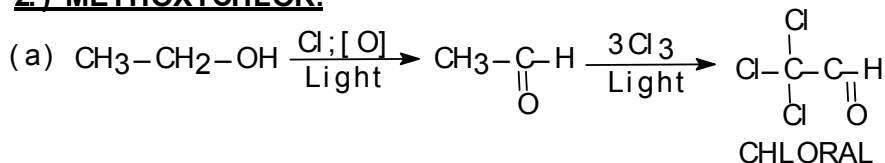
Application: (i) It is used for the control of the pests of balfaea, corn and for grass – hopper.

(ii) This is not only protects the seeding from the damage by insects but also stimulates the germination of seeds.

(iii) It is used for controlling soil insects

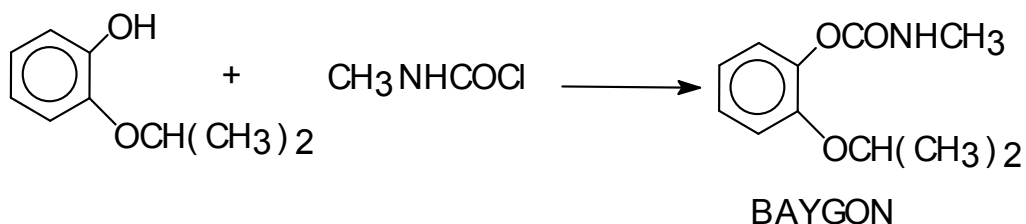
(iv) It is used to control of cockroaches.

2.) METHOXYCHLOR:



- Application:** (i) It is a white powder melting point 89°C
(ii) It is more potent than DDT but it is of lower chronic and acute toxicity.
(iii) It can be safely used on vegetable, crops, cattle and against pests in house – hold.
(iv) It does not get stored in body therefore, it is favored for use on animals.

3.) BAYGON: (2-Isopropoxyphenyl -N-methyl Carbonamate)



- Application:** (i) It is a white solid, melting point 91°C .
(ii) It is soluble in polar solvents and slightly soluble in water so, It is a broad spectrum insecticide for the control of agricultural pests, House – Hold insects.

4.) FERBAM: (Organo Sulphur Insecticides)

