

**Ex No. 4**

**Date:**

## **ACQUAINTANCE OF INSECTICIDE FORMULATIONS**

### **Objective:**

To get familiarized with the different formulations of insecticides.

It is essential that the toxicant must be amenable to application in an effective manner so as to come into direct contact with the pest or leave an uniform and persistent deposit upon the plant surface. The toxicant is to be made available in a diluted form or in a form easily distributed. Therefore the compound containing the toxicant must be formulated in a form suitable for use as a spray, dust or fumigant.

### **Common formulations of pesticides are:**

1. **Dusts:** In a dust formulation, the toxicant is diluted either by mixing with or by impregnation on a suitable finely divided carrier. The carrier may be an organic flour or pulverized mineral or clay.
2. **Granular:** In a granular formulation, the particle is composed of a base as an inert material or vegetable carrier impregnated or fused with the toxicant which is released from the formulation in its intact form or as it disintegrates giving controlled release. Granules are prepared in three ways:
  - i) Impregnation technique
  - ii) Agglomeration technique
  - iii) Stick-on technique
3. **Wettable powders (WP) or water dispersible powders (WD P):** It is a powder formulation which yields a rather stable suspension when diluted with water. It is formulated by blending the toxicant with a diluent such as attapulgit, an auxiliary material and surfactant.
4. **Water soluble powder (SP or WSP):** It is a powder formulation readily soluble in water. Addition of surfactants improves the wetting power of the spray fluid. This formulation usually contains a high concentration of active ingredient and therefore convenient to store and transport.
5. **Emulsifiable concentrate (EC):** The formulation contains the toxicant, a solvent, an emulsifying agent and other spray additives. It is a clear solution and yields an emulsion of oil-in-water type when diluted with water to spray. When sprayed the solvent evaporates quickly leaving a deposit of toxicant from which water also evaporates.
6. **Suspension concentrate or Flowable (F):** This formulation is developed when an active ingredient is insoluble in either water or organic solvents. The active ingredient is milled with a solid carrier (e.g. inert clay) and subsequently dispersed in a small quantity of water.

