

(i) **Sticky Band:** Any sticky material can be used around the tree trunks in fruit orchards to prevent the insects from climbing up the tree. At present, sticky materials on polythene sheet are being used against the mango mealy bug.

(ii) **Slippery Band:** In this case, slippery polythene sheet is used around the tree trunks which stop the upward climbing of the pests.

#### 2.5.2.4 BIOLOGICAL CONTROL

It is the control of insect pest by encouraging and utilizing their natural enemies (predators/parasitoids/parasites). There are four methods of biological control:

1. By importing natural enemies from abroad and then releasing them locally against a particular insect pest.
2. By collecting natural enemies from one part of the country and releasing them in another part of the country.
3. By rearing natural enemies in large numbers in the laboratory and then releasing them outside in the field against a particular pest.
4. By collecting parasitized stages of the particular pest (egg, larva and pupa) for emergency of parasitoids in the laboratory and then releasing them in the field against that particular pest.

The biological control can be done with the natural enemies or many other living organism such as birds, snakes, lizards, toads, fungi, viruses, bacteria, protozoa etc.

#### **Entomophagous insects**

The insects which feed upon other insects are called entomophagous insects. These are of three types:

- Parasites
- Predators
- Parasitoids

**Parasites:** The insects which feed in or on the body of other insects are called

parasites. The insects, on which parasites live, are called host insects. Parasites normally weaken the host and do not kill it. Parasites are of two types:

**Ectoparasites:** which live on the body of insects.

**Endoparasites:** which live in the body of insects.

The act of parasitizing insects is called parasitism. The parasites may be primary parasites, secondary parasites or tertiary parasites. The parasites on parasites are called hyperparasites and this process is known as hyperparasitism. Important parasites are; human or mammal louse/lice, bed bugs etc.

2. **Predators:** The insects which catch and feed upon other insects are called predators. The insects on which they feed are called preys. Important predators are; preying mantids, mole cricket, dragonfly, water bug, ant lion, ladybird beetles etc.
3. **Parasitoids:** The insects which live in the body of other insects and emerge after killing the host. Parasitoids complete their life cycle in the body of host insect. *Aphidius colemani* is an important parasitoid of cereal aphids. *Trichogramma spp.* are egg parasitoids of many lepidopteran insects.

### DIFFERENCE BETWEEN PREDATOR AND PARASITE

#### PREDATORS

1. The insects that catch, tear, bite and eat other insect in a single meal.
2. The insects are larger, stronger and more intelligent than their prey.
3. Obtain their food directly.
4. Independent of the habitat of host.
5. Each eats many individuals before maturity.

#### PARASITES

1. The insects that live on or in the body of insects (host).
2. The insects are smaller, weaker and less intelligent as compared to their host.
3. Obtain their food indirectly.
4. Same habitat as of the host.
5. Feeds on a single individual till maturity.