

## **Lect. 6**

### **Biological control**

#### **Para biological control agent**

##### **1- Pheromone:**

Pheromones are a secreted or excreted chemicals capable of acting outside the body of the secreting individual to impact the behavior of the receiving individual.

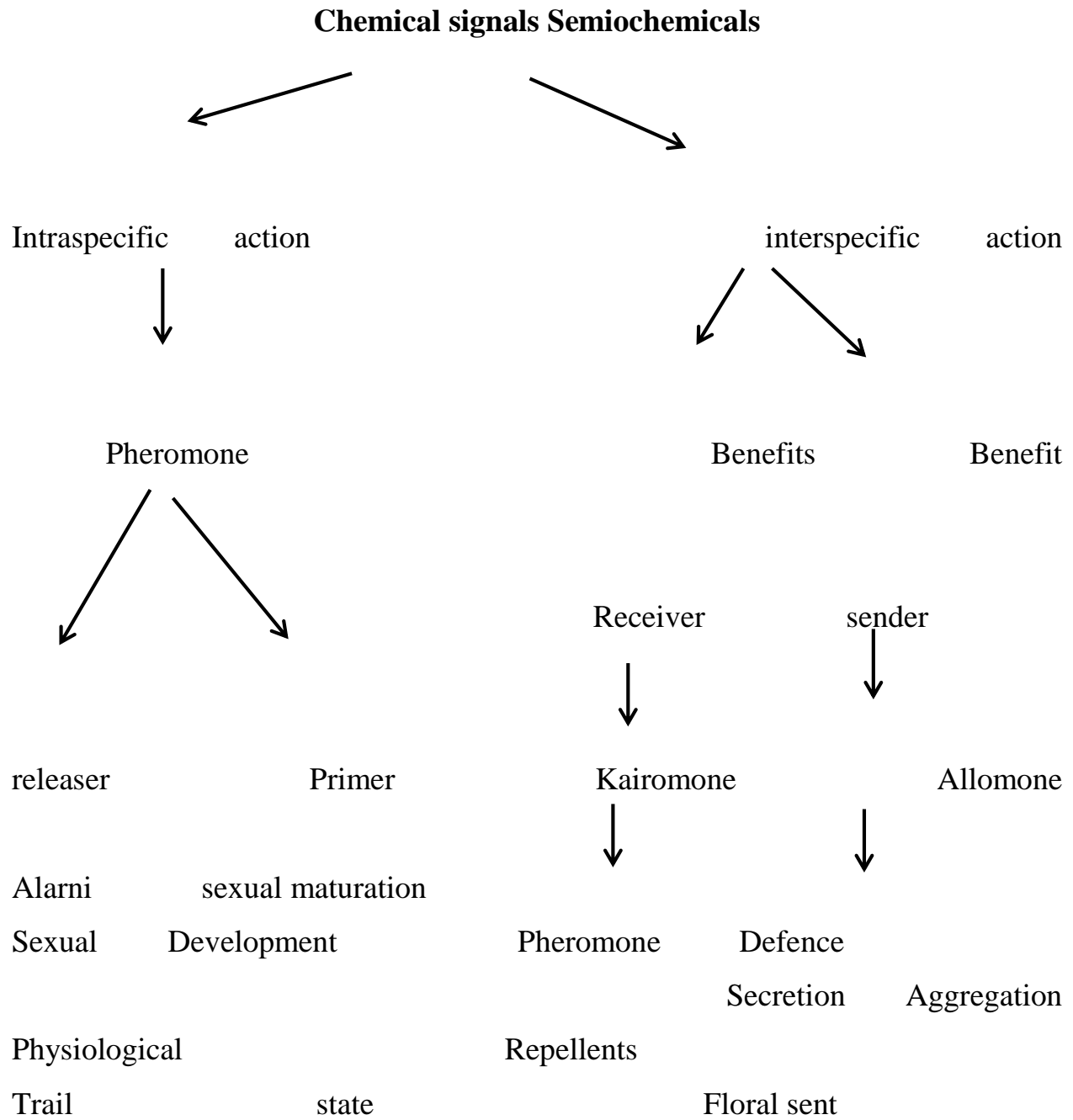
\* A semiochemical is a generic term used carries a message for purpose of communication .

\* semiochemical communication can be divided into two broad classes.

A- Communication between individuals of the same species (Intra specific).

B- Communication between different species (interspecific).

\*Semiochemical is usually used in the field of chemical ecology to include pheromones, allomone , Kairomones, attractants, and repellents.



**Allomone:**

An allomones is any chemical substance produced and released by an individual of one species that affects the behavior of a member of another species to the benefit of the originator but not the receiver, (benefits sender).

Production of allomones is common form of defiance, such as by plant species against insect herbivores or prey species against predators.

### **Kairomone**

A Kairomone is a Semiochemical emitted by an organism, and benefits an individual of another species which receives it, without benefitting the emitter. (benefits receiver).

### **Pheromone :**

Are intra specific signals that aid in finding, mate habitat resources, warning of enemies , and competition.

### **Types of pheromones**

#### **1- Aggregation**

Pheromone functions in mate selection, overcoming host and defense against predators. A group of individuals one location is referred to as an aggregation, whether consisting of one sex or both sexes , Aggregation pheromones have been sexes, Aggregation pheromones have been found in members of the Coleoptera, Diptera, Herniptera and Orthoptera.

## **2- Alarm**

Some species release a volatile substance when attacked by a predator that can trigger flight (in aphid) or aggression (in ants, bees, termites).

## **3- Trail**

Trail pheromone are common in social insects, for example, ant mark their paths with these pheromones, which are volatile hydrocarbon certain ants lay down an initial trail of pheromones as they return to the nest with food . this trail attracts other ants and serves as a guide.

## **4- Sex pheromone:**

Many if not all insect species, such as the ant , the moth and the bee and butterfly release sex pheromones to attract a mate.

### **primer pheromone**

Primer pheromone trigger a change of developmental events , exp. sexual maturation ,Development physiological state,(in which they differ from all the other pheromones , which trigger a change in behavior.

### **Definition of Allelochemical**

A toxic chemical produced by plant order to defend itself against herbivores or competing plants.

### **Definition of Synomones**

Any substance produced by an individual of one species that benefits both the producer and recipient which is a different species.

### **The advantage of us Semiochemicals in pest control are:**

- 1- They are relatively nontoxic and required in low amounts.
- 2- They have adverse effects only on target pests.
- 3-They are non-persistent and environmental safe.
- 4-They appear difficult for insects to develop resistance against.
- 5-Monitoring of pest population with pheromones is often integrated in management programs.

## **What's the difference between a pheromone and a hormone?**

Hormones are secreted internally , we all are familiar with the effects of testosterone and estrogen , both on the anatomy and behavior of humans , while the pheromone are secreted externally and have an effect on another organisms in similar ways. Usually they have to do with attracting sexual partners or changing a sex partners behavior.

## **An Insect repellent:**

Is a substance applied to skin, clothing or other surface which discourages insects from landing or climbing on that surface. Insect repellents help prevent and control the outbreak of insect borne disease such as Malaria.

## **Attractants:**

a substance (as a pheromone ) .that attracts specific animals (of the opposite sex. A number of these are now commercially available to be used in to attract insects, Many of these are sex attractants which are produced by one sex (in moth, usually the female to attract the other sex.