

# INSECT PHEROMONES

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Pheromones are used by insects to send a wide variety of signals. Pheromones are substances produced and released into the environment by living organisms and causing a specific response (characteristic behavior or characteristic developmental process) in perceiving their individuals of the same biological species. Odorous substances are synthesized in the body in small doses, which complicates their chemical analysis.

Purpose of the research: to study the causes of the effect of pheromones on insects.

Research objectives:

1. How pheromones affect insects.
2. To study different types of pheromones.

Relevance: the study of pheromones opens up ways to control the behavior of insects. Finally, pheromones are used by animals to recognize species and serve the purpose of interspecific isolation. The study of pheromone and other types of communication allows us to better understand the evolutionary processes.

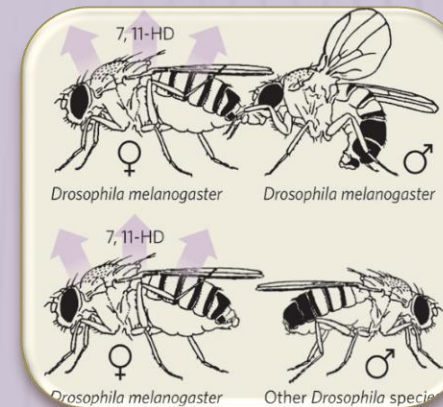
Object of research: insects.

Subject of research: insect pheromones.

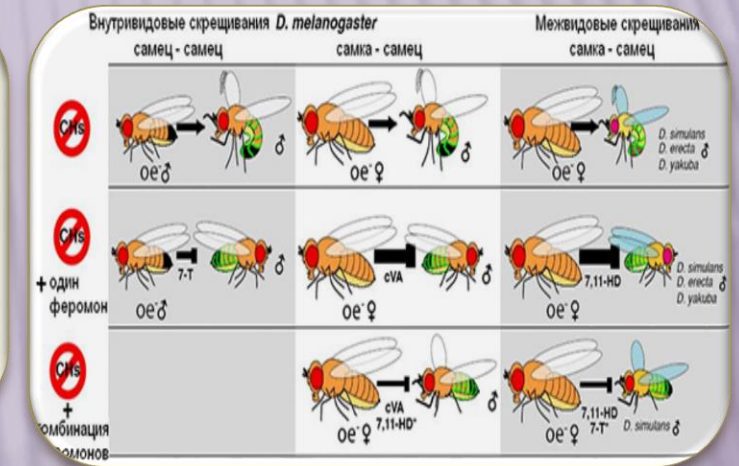
Usually pheromones are not a single substance, but a mixture of the main, predominant component by mass with minor additives. One substance may have several different functions. A typical example is the "royal substance" of honeybees, secreted by the glands of the upper jaws of the queen bee. This pheromone attracts both male and worker bees to the queen, acting as a releaser.

The chemical structure of pheromones is much more diverse than their functional types. Releasers are characterized by high volatility and relative ease of synthesis in the body: the insect is sometimes forced to release pheromone for a long time, waiting for the partner's reaction. Pheromones are often used for species identification and, in connection with this function, should be specific for each of the species. Research on sex pheromones is developing most successfully, where the components of pheromone mixtures have been determined in hundreds of species, mainly in agricultural and forest pests.

Comparative study of sex pheromones in Lepidoptera to reveal significant evolutionary changes.



PHEROMONES



The role of hydrocarbon pheromones in the formation of interspecific reproductive isolation.

In many insects that form families or clusters (termites, aphids, bedbugs, ants, wasps, bees), there are special chemicals designed to alert group members about danger. Alarm pheromones are released into the air by those insects that first noticed the danger. After exceeding the threshold concentration, other individuals that received the pheromone signal, in turn, secrete the same substances. As a result, the cluster disperses or insects resist the aggressor.

The study of insect pheromones is just beginning. Until now, there are no data on the composition of pheromones in many groups, the interaction of individual stimuli in the creation of a holistic communication system and biosynthesis of pheromones. These studies open the way to knowledge of the subtle mechanisms of the evolution of pheromones and the associated evolution of species. The study of pheromones opens the way to control the behavior of insects. Finally, pheromones are used by animals to recognize species and serve the purposes of interspecific isolation. The study of pheromone and other types of communication allows for a better understanding of evolutionary processes.

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