



STRUCTURE AND DEVELOPMENT PHASES OF BEES

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Abstract

The development of bees is divided into four stages, i.e. egg, larval, pupal and adult imago periods. Bees undergo several changes after hatching, that is, from the postembryonic period to the adult imagologic period. During the development of bees, all three individuals of the family go through a series of complex changes.

Key words

Bee family, bee egg, postembryonic and imago periods, parthenogenesis, reproduction.

Interest in bees dates back to ancient times. At first, they were treated with honey as a sweet food, but later, with the development of animal husbandry and agriculture, the interest in bees increased even more. Then they were convinced that there were beneficial insects, and as a result, people realized the benefits of bees and domesticated them, that is, they moved bees to special hives made of clay, woven reeds and carved into tree trunks.

Beekeeping farms should not focus only on one honey crop. For this, they need to grow and buy queen bees and package bees from early spring. In addition, it is desirable to produce bee milk and venom. Because now 1 gram of bee venom is worth 100 US dollars and 1 kg of bee milk is worth 1000 US dollars in the world market. In the production of such products, the economy will certainly benefit greatly.

Now our Independent Republic is to overcome the existing difficulties for beekeepers and open a wide way to beekeeping, prepare a comprehensive program for its development and introduce it into production.

Research object. The bee family.

Research results. In the bee family, there are members of different sexes, they are male bees, which store the male cells - spermatozoa, and have well-developed reproductive organs in their bodies and lay a large number of eggs consists of female queen bees that have the ability to eat. After mating with a male bee on the first day of her life, the queen receives a large amount of spermatozoa in her testicles. Gradually, during the life of these spermatozoa, during the time when the mother bee lays eggs, it serves to fertilize them.

Unfertilized eggs of vertebrates die without development. In most insects, including bees, unfertilized eggs produce male bees, and fertilized eggs produce female, queen, and worker bees. The development of male bees from unfertilized eggs is called parthenogenesis.

The phenomenon of parthenogenesis. Parthenogenesis means the development of egg cells in virgin reproduction, that is, from fertilization. In this process, the generation develops and lives, and a certain type of generation is preserved.

In nature, there are three types of reproduction in animals: asexual and sexual reproduction, and

parthenogenetic reproduction. In asexual reproduction, the animal's body splits into two, or a part of the female's body sprouts, separates and begins to live an independent life. The simplest animals (amoebae, spore-forming, infusoria), flatworms and ringworms reproduce asexually. In sexual reproduction, germ cells are formed, and they merge with each other to form a new individual. Sexual reproduction is widespread in the animal world, from unicellular organisms to mammals.

Parthenogenesis is the development of reproductive unfertilized eggs. An example of this is the reproduction of galls through parthenogenesis. There is also a phenomenon of parthenogenesis in bees.

The phenomenon of parthenogenesis in bees and the development of male bees from unfertilized eggs in the middle of the 19th century, in 1848, is inextricably linked with the name of an experienced beekeeper scientist Dzierzon. The worker and the mother bee found that the egg laid in the cells contained a spermatozoid or a male nucleus. Eggs produced by male bees do not contain nuclei and spermatozoa.

Parthenogenesis is of great importance in breeding, because when one breed of queen bees is crossed with another breed of male bees, the offspring of female individuals (mother bees and worker bees) will be hybrids, that is, hybrids, and the offspring of male bees will have the genetic characteristics of the queen bees.

Worker bees sometimes lay unfertilized eggs in unfavorable conditions, i.e. in the absence of queen bees, but only male bees grow from them. Some literature shows that male bees hatched from eggs laid by worker bees have the ability to mate with queen bees individuals can also develop. Reproduction of female individuals by the method of parthenogenesis is characteristic of bees living in the south - African and Caucasian bees.

Reproduction in the method of parthenogenesis is a type of sexual reproduction, which is repeatedly formed from the reproduction associated with the fertilization of an egg. Parthenogenesis occurs as an adaptation that gives more chances to survive in some species of animals, and it becomes possible to leave offspring without the participation of a male individual and without the process of fertilization. According to the biological characteristics of bees, one-way parthenogenesis prevails, that is, male bees always develop from unfertilized eggs. At the same time, the development of female individuals in beekeeping by parthenogenetic method has also been observed in science.

Newly laid eggs are white in color and 1.5-1.6 mm long. It is surrounded by a strong shell. Inside the egg there is a yellow substance, which is necessary for the development of the egg cell, the nucleus and the egg. The egg state lasts for 3 days, and during this time, a period of strong development of the pink occurs. By the end of the third day, the egg begins to slowly bend down from the front side of the incha. Beekeepers can tell when a 3-day-old egg is turning into a maggot. By the end of the third day, a fully formed little worm hatches its egg. The protective apparatus of bees has a complex structure, the central part of which is occupied by the salazka, i.e., the immobile part. A pair of growths and a plate begin from the salazka. And stiletto to Salazka. That is, the tumor of the movable part is adjacent. The stylet moves along the direction of the arrow in the slide. The back of the stylet is held in place by means of two soft plates covered with sensory hairs.

Maturation of eggs in the ovary of the queen bee. Each of the egg tubes in the queen bee's ovary is called a thin end, a fiber end. In this part, the tubes are filled with embryonic cells of the epithelium - ogani. Oganii know no boundaries, they divide, increase in size and move and try to get out of the tubes. In addition, it was found that there are three different types of cells in the egg tubes. Around the nucleus with its large size and light-colored protoplasm are oocytes, and egg cells begin to form from them. Most of the other cells are used to make yolk cells, which are round in shape and often filled with nutrients. They receive these nutrients from the hemolymph through the follicular cells. After that, the follicular cells become the basis for the creation of the egg pod.

Egg cells are formed from oocytes after various movements in the fallopian tubes. After that, when the egg cells develop and become a little larger, the yolk cells give all their nutrients and become smaller in size. During this period, the follicular cells strengthen and form the outer follicular coat of the egg, the chorion. Below the chorion is the yolk sac.

When the egg cells are filled with yolk, they gradually turn into eggs. Moving through the tube, the egg first falls into a funnel-like expansion and then into the common cleavage path.

The more egg tubes in the queen bee's ovary, the more eggs are produced at the same time. Each oviduct contains an average of 13 or more egg-forming chambers. Now do the math, well-developed queen bees have been proven to lay more than 2,000 eggs in a day, with 200 egg tubes in each ovary.

When the queen returns from the mating game, she starts laying eggs 34-48 hours after insemination. If the mating of the queen and male bees is successful, the queen begins laying eggs. At this time, she lays two types of eggs, fertilized and unfertilized. An egg is called a fertilized egg if a sperm enters it and stays in it while it is going through the age of the embryo. Sperm enters the egg through the micropyle. The joining of sperm and egg nucleus is called fertilization.

The fertilized egg contains the genetic traits of the mother and male bees. Depending on the nutritional conditions, the mother and worker bees develop after such an egg. Only male bees develop from unfertilized eggs that have not been fertilized by sperm. This biological feature is of great importance in beekeeping. Male bees that develop from unfertilized eggs have all the genetic characteristics of the mother bee.

For example, when a yellow Italian queen bee is crossed with another breed, a male honey bee, from her fertilized eggs, only queen and worker bees that are characteristic of these two generations will grow and develop. From unfertilized eggs, only yellow Italian male bees develop.

The large size of the egg causes the embryo inside it to be large, and in this case, large bee larvae are formed.

The ability of queen bees living in the same conditions in beekeeping to lay eggs depends on their genetic characteristics. Queen bees with good genetic traits lay more eggs than bees with poor genetic traits. According to the conducted studies (Torayev, 2015), the selection of checked fertile queen and male bees is of great importance for good breeding in beekeeping. The quality of bees is determined by the results of many indicators obtained from their offspring.

Conclusion. The development of bees is divided into four stages, i.e. egg, larval, pupal and adult imago periods. Bees undergo several changes after hatching, that is, from the post-embryonic period to the adult imago phase. During the development of bees, all three individuals of the family go through a series of complex changes.

Therefore, during post-embryonic development, differentiation occurs and passes through two main stages - larval stage and adult imago stage. In the larval stage, insects grow and develop, and in the imago stage, they multiply and spread. Sometimes, in most insects, there is a pupal stage (in bees) between these two stages.

During development, bees change and restore their shape and biological properties.

The transformation from one form to another is called metamorphosis in biology. Metamorphosis is the process of changing the structure of the organism until the bee larva turns into an adult imago period.

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