



## BIOLOGY OF THE BEE FAMILY

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### Abstract

In the article, the polymorphism of bees living in groups, except for male and queen bees, the majority of them are worker bees, they are sexually undeveloped female organisms, and they perform all tasks, nest building, raising young generations, and feeding queen bees, in addition, it is reported that they collect nectar and pollen, maintain a nutritional balance in the family, and thus increase productivity slightly by pollinating the flowers of plants from the outside

### Key words

honey, wax, pollen, propolis, royal jelly, pincers, polymorphism, oviparous, larval, bulbous, imago periods.

**Introduction.** The wonderful nature and climatic conditions of our republic allow the successful development of beekeeping, as well as all areas of agriculture. Our endless natural meadows, colorful hills, endless cotton fields, vast gardens and flower gardens are an excellent source of food for bees. Nevertheless, at present, the weight of development of this branch of the national economy cannot sufficiently meet the daily increasing demands of the population.

The importance of beekeeping in increasing the yield of agricultural crops is even greater. It is known that 80% of flowering plants in the world are pollinated from outside. Bees play a key role in the external pollination of these plants, as other pollinating insects are few in number and cannot be moved to pollinate crops when needed. Bees can be used to pollinate plants when needed.

Bees are even more important in pollination of cotton in cotton fields and in increasing their productivity. From the experiments, it was found that the yield of cotton fields pollinated with the help of bees increased by 10-23%, their bolls were larger and ripening was accelerated. The experience of beekeepers in our republic shows that 30-40 kg of honey is obtained from each family of bees placed in cotton fields. So, in order to increase productivity in cotton farming, it is necessary to place a family of bees in each cotton field. The more bees there are, the more honey and agricultural crops will be produced.

From these, it can be seen that beekeeping is useful and profitable in every way. Therefore, it is necessary to give sufficient importance to this area and to develop it in every way.

With the transfer of beekeeping to industrial production in the republic, development of new rational methods of beekeeping management, mechanization of heavy manual work in beekeeping is of great importance. For this purpose, it is necessary to systematically increase the bee family, move it from early spring to the desert, mountain foothills, use seral plants in a rational way, carefully think and develop mobile beekeeping on the basis of planned technologies.

The development of complex measures aimed at increasing beekeeping products to a certain extent, mobile beekeeping, which has a certain influence on the measures implemented in beekeeping farms, is of particular importance.

In order to develop the bee family in the republic, it is time to introduce the development of rapid technology of honey production, to introduce scientific and technical achievements and advanced practices to beekeeping. Creating new breeds of bees and improving their breeding is also an important issue. It should be noted that most of the queen bees cultivated in our Republic remain low-productivity.

One of the tasks facing beekeepers is to constantly fight with bee diseases and pests. Until now, the issues of American and European rot, varroaosis diseases, wax moth loss, which are very dangerous infectious diseases, have not been fully resolved, practical measures to combat other predatory insects and birds have not been developed, prevention of various diseases of bees and sanitation -veterinary control is not fully established.

The life of bees is very interesting and complex, during their life they pollinate agricultural crops and produce many valuable products. It is also important to know the life of bees and their biology and anatomy. Bees produce valuable products such as honey, wax, pollen, propolis, royal jelly and venom. These products are produced in the various organs of the bee, and all of these are wonderful gifts that are brought from nature and processed into complex compounds.

All insects have a common structure, but within each class there is great diversity in body structure. This means that the insect organism has the ability to quickly adapt to changes and external conditions.

Interest in bees dates back to ancient times. At first, they were interested in collecting food products, but later, when cattle breeding and agriculture were established, they began to pay attention to them on a scientific basis. As a result, a new industry, beekeeping, began to emerge. But the scientific study of insects began in the 12th century.

In particular, in XVIII century, the great Swedish scientist and naturalist K. Linnaeus (1707-1778) wrote in 1735 the work "Systematics of Nature", insects occupy a prominent place. In this work, it is recommended that each species of animals and plants should be named in full with two Latin words and a genus. In this case, the first word means the family of the same animal and plant, and the second the name of the species. For example: bees also have a scientific name - *Apis mellifera* L, the Latin letter L at the end is the first letter of the surname of Linnaeus, who described bees several times. Species are sometimes divided into subspecies and many species.

The division of bees into different species shows that they have the ability to quickly adapt to different living conditions. Among the types of bees, the Gerst-Caucasian yellow bee *Apis mellifera remptes* (lives in Armenia and the North Caucasus) was first described by Gereshteker, or the Gorbachev brown mountain bee *Apis mellifera Cavcasica* was first divided into separate species and types by Gorbachev.

There are more than 30,000 representatives of the bee family, including 3,500 in the CIS, and it is the most highly developed large group of bees. The front shoulder of the representatives is ring-shaped, the body is hairy, the first joint of the hind paw is widened and the apparatus for collecting pollen is turned into a palm. The young generation feeds on plant sap and pollen.

Bees have evolved to the highest level because they feed on the nectar of highly evolved flowering plants. The fragrance and color beauty of flowers, created during the process of plant evolution, serves as a warning to attract bees.

Biologically, they are divided into groups of individuals living alone and living in groups. Most solitary bees consist of only one male and one female. Each female builds her own nest and collects food to feed the larvae. It is of great importance in external pollination of flowers of various plants.

The concept of polymorphism. Bees living in groups are polymorphism. In addition to male and female bees, the majority are worker bees. They are sexually immature female organisms and perform all the tasks of making a nest, raising young generations, and feeding the mother bees. In addition, they collect nectar and pollen, ensure the nutritional balance in the family, and thereby pollinate the flowers of plants from the outside, increasing the productivity a little.

The life of bees is extremely complex. Each species that forms the core of the family performs a certain task. Therefore, a family consists of one queen bee, several hundred males and thousands of worker bees. According to their shape, structure, biological and physiological characteristics, as well as the performance of different tasks, the shape change of different bees depending on the performance of different tasks is called polymorphism. Polymorphism can be sexual and environmental.

Sexual polymorphism is a widespread, mostly compatible community, characteristic of nesting

insects - ants, bees, wasps and termites. For example: bee queen-mother, males (truten) and sexually immature female-workers are not similar in appearance.

Sexual polymorphism of insects that live in groups occurs within the family through a complex mechanism. A special teleorgan fluid secreted by the female bee from the uterus plays an important role in this. This liquid has a physiological effect on worker bees and prevents the development of gonads. The exchange of food between family members and the feeding of larvae also play an important role. In bees, only males develop from unfertilized eggs.

Ecological polymorphism occurs under the influence of the external environment. The degree of development of wings is characteristic of them. The duration of the egg, larval, pupal, and imago periods is also different, and it depends on how well the bees have adapted to certain living conditions. In general, the egg-laying, larval, pupal and imago life of bees, their morphobiological characteristics, form systematic units.

Polymorphism usually results from the performance of a certain task in each animal family, that is, the distribution of the work performed is directly related to their morphological difference.

Queen bees are often referred to as "king" bees. The queen bee is the only member of the family, and she does not perform any other task than laying eggs. Compared to other bees, queen bees differ from others in their changes, body size, delicacy, and beauty. The body is elongated, 20-25 mm long, and weighs up to 0.3 g. Its wing does not completely cover the abdomen. There are no pollen baskets on the hind legs and wax windows on the abdomen. Khartoum is much shorter than that of worker bees. The reproductive organs of the queen bee are well developed, and each of her two ovaries contains more than 150-250 egg tubes.

Mother bees live longer than the members of the family, up to 4-5 years. But he leaves his nest three times during his life. They come out for the first time at the age of 5-7 days after getting acquainted with the environment, when they reach adulthood at the age of 10-15 days to mate with male bees, and when they come out for the last time, when several queen bees appear in the family, they breed in order to establish a new family. ch are released. Sometimes, if for some reason two queen bees appear in a family, a fight for life begins between them, as a result of which the weak one dies. However, some literature reports that 2-3 queen bees lived peacefully in one family for a certain period of time.

When the queen flies out to swarm, the paternity seed, which is mixed with several male bees, can last her entire life, because these seeds are stored in the special seed storage sacs of the queen bee. The ability to lay eggs gradually disappears in queen bees that do not mate with male bees for some reason.

After mating with the male bees, the queen lays two types of eggs: fertilized and unfertilized. Fertilized eggs produce female, i.e., mother and worker bees. Only male bees emerge from unfertilized eggs.

The main task of the mother bee is to lay eggs and save her offspring. That is why they are busy laying eggs from early spring to late autumn. In early spring, she lays several hundred eggs in one day, then gradually increases the number of eggs, and when the main season begins, she can lay more than 1500-2000 eggs in one day. when the weight of the eggs laid per day was weighed on a scale, it was found that it was twice as heavy as its own weight.

Queen bees feed on food brought by worker bees. The worker bees feed the queen bees with high-quality food (mainly royal jelly), a mixture of pollen and honey from their hives. Thus, in a few minutes, 8-10 worker bees provide enough food to feed the queen at one time, and this process is constantly repeated and continues.

Male bees are males, their bodies are much larger than those of worker bees, and they are distinguished from other bees by their thick, rough and clumsy bodies. The body length of male bees is 15-17mm, weight is 0.2-2.4g, eyes are large and complex, located very close to each other on the top of the head. His mustache consists of 13 joints.

Male bees do not have glands that store nectar and poison, and there are no pollen collecting devices on their legs. Khartoum has not developed well. Male bees live in the family from early spring to autumn. In summer, their number can be up to 1-3 thousand in one family. Male bees feed on ready-made food and live as foragers. Because male bees are free-eaters, worker bees kill them or drive them out of their hives in the fall. As a result, they die of hunger and cold.

The sole function of male bees is to fertilize the queen bees. That is why their genitals are well developed and their seminal tubes are well developed. The number of such seminiferous tubules is more than 200, in which millions of spermatozoa develop. It takes 24 days for male bees to go from pupation to adulthood. Young male bees fly out of their nest for the first time at the age of 5-7 days. After 8-14 days, they become sexually mature and ready for mating. They have not developed niche apparatus.

Male bees play a major role in maintaining the purity of the breed by transferring their genetic traits from their fertilized eggs to the queen and worker bees that develop them, so this should be taken into account when choosing good breeding bees.

A large number of male bees in a bee family makes it possible for the mother bees to mate quickly and generally. Because the more male bees there are in the air at the time when the young queen bees go to the "marriage wedding", the faster they will meet and the chances of mating will increase somewhat. So, it is possible for the mother bees to return to their nest and start laying eggs.

There are certain rules for male bees flying out of the hive. They do not leave the nest until 11:00 in the morning, and they fly out and return most often in the afternoon until 14:00 and 16:00. So far, it has been emphasized that male bees perform only one task, that is, the task of fertilizing the queen bee. However, it has been proven several times that they take part in the ventilation of the nest and the flow of water in the hottest part of the summer season in the conditions of Uzbekistan, when the air temperature is high.

A single young queen bee mates with up to 8-13 male bees during her brooding flight. After mating, all male bees die within a few hours, because during mating, the queen's genitals remain in the sheath, and as a result, they die.

Worker bees are the main part of the family, and their number reaches 60-100 thousand in the summer season. Worker bees are female bees whose reproductive organs are not well developed. Therefore, they do not have the ability to mate with male bees. In some cases, if they lay eggs, only male bees will develop from these eggs.

The service of worker bees in the family is very great. They protect their nest, clean it, change the air, moderate the air humidity in the nest, feed their larvae and young bees, transport nectar and pollen from the field, process nectar into honey, build new hives, etc. The diversity and complexity of their work, their external and internal structure, led to the appearance of signs that differ from others, their snout is much longer, they have wax glands on their abdomen, and a basket for collecting pollen on their hind legs. The hives of worker bees are much larger than those of the queen and male bees.

Also, the proboscis of the worker bees is well developed compared to that of the queen and male bees. Its length is 5.5-7.2 mm, the snout of the queen bee is 3.5 mm, and the snout of the male bee is 4 mm. That is why the mother and male bees do not have the ability to collect nectar.

The body length of worker bees is 12-14 mm, the average weight is 0.1-0.10 g, that is, there are 10,000 worker bees in one kilogram. In summer, worker bees live for 35-40 days, and in winter for several months, because worker bees are overworked in summer and their lifespan is shortened. They live longer because they eat ready-made food almost without working in autumn and winter.

The useful value of the bee family in the economy is determined by worker bees and plays a decisive role. The brain and niche organs of worker bees are well developed. Because worker bees perform various tasks in the family, they are important in the formation of the genetic characteristics of the mother and male bees in the farm.

## References

1. M.Yunusov, F.Xabibullayev, O.To'rayev, M.Nizomitdinova, «Asalari anatomiyasi va fiziologiyasi» o'quv qo'llanma Farg'ona-2023
2. Isamuxamedov A.I., Nikadambayev X.K., Asalarichilikni rivojlantirish asoslari. Toshkent "Sharq" nashriyoti, 2013. 20-25 betlar.
3. Jo'rayeva.D.R, To'rayev O.S. Maxalliy populyatsadagi asalarilarning ko'ch onadonlarining tuzilishi va undan ona asalari yitishtirish."Chorvachilik va nasilchilik ishi"jurnali, 2021, №4,37-39 betlar.
4. Kraxotin N.F. O'zbekistonda asalarichilik. Toshkent, "Mehnat" nashriyoti, 1991. 10-25-betlar.
5. Qahramonov B., Isamuxamedov A., Ballasov U, Ergashev S, To'rayev O.. "Shaxsiy yordamchi,

dehqon va fermer xo'jaliklarida asalari oilalarini parvarishlash" Toshkent "Uneversitet" nashiryoti, 2009.38-51 betlar.