

STUDY OF SILK FIBER OFFSPRING IN BIOLOGY CLASSES

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Annotation

The silk separation gland consists of tubes divided into three pieces, located on either side of the worm's body. Silk - occurs in the silk secretory glands of the silkworm. The size of the silk gland is 40% of the total size of the worm, the length of which is 5 times the length of the worm's body when stretched. As the fibroin formed in the lower pair of silk-separating glands passes through the reservoir, it is surrounded by sericin and emerges in the form of two streams that do not coalesce along the single excretory tract. Accordingly, the cocoon strip consists of two fibers coated with sericin and glued. The cross section of the cocoon is reminiscent of an ellipse divided into two equal pieces.

Key words:

Cocoon length, yarn, density, sunlight, steam, heated air, high frequency current, vacuum, hermetic method, radioactive light, chemical fashion, freezing way.

The food-saturated silkworm begins to wrap around the cocoon. Cocoon wrapping can be divided into 4 periods. In the first period, the worm takes out the silk and takes it to the air. This is called cotton los. In the second period, the worm movement is short-lived, making the thread relatively dense. This cocoon is called losi and is not suitable for chewing. In the third period, the worm wraps around the main part of the cocoon. This part makes up 70-85% of the shell and is suitable for rinsing. During this period, the worm uses its head like a pendulum and casts a thread in a semi-octagonal shape. In the fourth period, the inner shell of the cocoon is shed. The cocoon strip here is thinner and looser than the previous ones. This part of the cocoon shell is also unsuitable for rinsing.

The quality of raw silk depends, of course, on the cocoon, and the quality of the cocoon depends on the feed, the correct execution of the silkworm feeding process. Mulberry silkworm breed or hybrids are distinguished from each other by their distinctive appearance, appearance and shape of the cocoons..

The color of the cocoon can be white, light yellow, greenish white, novvot color, pink. The most valuable of these is the white cocoon.

The shape of the cocoons can be round, oval, oval-shaped, cylindrical, with one or both ends sharp-pointed

The size of the cocoons is determined by the length, the diameter of the hemispheres, the diameter of the waist. ¶ The hemispheres where the head of the umbilicus is located are smaller and are called the diameter of the head hemispheres. The part where the abdomen is located is relatively larger and is called the diameter of the tag hemispheres.

The length of the cocoon is usually 24-40 mm and more, the diameter of the cross-section can be 12-22 mm and more. The size of the cocoon depends on the breed of silkworm and the sex of the feeding conditions.

The granularity of the cocoon. The surface of the cocoon has a rough (granular) structure, and as it penetrates, the roughness decreases and becomes smoother. The size of the grains depends on the breed of the cocoon, the density of the shell and the feeding conditions.

Depending on the size of the grains, they are divided into small, medium, large and spread granules.

Granularity - 1 cm² on the surface of the cocoon shell, expressed by the number of grains. Depending on the breed and location of the cocoon, the number of grains per 1 cm² can be from 50 to 150. If the grains in the cocoon look fine and clear, such cocoons have a dense and hard shell, and their silkiness and fineness are good.

Each silk fiber is composed of tightly connected fibers - fibrils with a diameter of 0.3-3 μm. The length of the cocoon is different from the total and continuous length.

Total length is the length of yarn spun from the beginning to the end of a single cocoon, regardless of the number of breaks. This length is 1200-1500 meters.

The elongation of the rope until it breaks is called elongation. Silk fiber is very stretchy. Silk fiber can stretch up to 24% of its original length without breaking.

The density of cocoon yarn averages 1.33-1.34 mg / mm³.

If we heat the silk to 1400S, it does not lose its properties. It does not conduct electricity. Sericin is soluble in water. Fibroin is insoluble.

Natural silk is extremely hygroscopic. It absorbs up to 30% of the moisture in the air.

Chemical composition of cocoon yarn: fibroin 70-80%, sericin 20-30%, ethers 0.4-0.6%, alcohol 1.2-3.3%, minerals 1.0-1.7% does.

The sponge inside the cocoon is killed so that it does not turn into a butterfly. ¶ There are several ways to kill an umbilical cord. These are: by sunlight, by steam, by heated air, by high-frequency current, by vacuum, by hermetic method, by radioactive rays, by chemicals, and by freezing. Among them, the most widely used method in production is the method of killing with steam and heated air.

During the day, the cocoons, which are spread in a thin layer on the sun blade, are heated to a temperature of 50-60oS. It dies as a result of burns because it is a critical temperature for them. Although it is an easy method of killing, ultraviolet rays of the sun are harmful to silk, and both fibroin and sericin are not used in practice because they undergo denaturation (altering the natural properties of a substance under the influence of the environment), destruction (decomposition of the normal structure of the substance).

In this method, the cocoon is isolated from the outside environment and no oxygen is allowed to enter the sponge to breathe. It takes more than 48 hours to kill a sponge in a hermetic box. When sealed, it contained 1.95-4.4% carbon dioxide and 19.76% oxygen, after 48 hours the amount of carbon dioxide increased to 12.65%, while the oxygen content decreased to 2.4%. ¶ The umbilical cord suffocates due to lack of oxygen. After being killed in this way, the cocoons should be dried in shady dryers. The water and air permeability of the cocoons killed in this method is good, allowing a lot of silk to be pulled. But because of its long duration, it has not been applied to production.

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