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Research Article

IT IS METHODICAL TO CONTROL THE MECHATRONIC SYSTEM IN THE DEANIMATION OF THE LIVING COCOON

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ABSTRACT

In this article, we can see different methods of killing the live cocoon in order to preserve the quality of the silk, and the methods of killing them are divided into different groups. We will also have information about the initial processing of the cocoon. Therefore, from the cocoon to the New Year season, raw silk is produced non-stop throughout the year. As a result of our research, we can see that deadening the living cocoon, reducing the high moisture content in it, is a pre-treatment process of the cocoon.

KEYWORDS

Therefore, from the cocoon to the New Year season, raw silk is produced non-stop throughout the year.

INTRODUCTION

Decision No. PF-4411 of the President of the Republic of Uzbekistan dated July 31, 2019 "On additional measures to develop deep processing in the silk industry" and the Decree of the President of the Republic of Uzbekistan dated September 2, 2020 Decision No. PF-6059 "On Events". in order to further develop cocooning, this law is the basis for the implementation of the tasks defined in the decision

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"On Events" and other regulatory legal documents related to this activity[1]. The main raw materials of the republic's textile industry are cotton fiber, cocoon and silk raw materials. In the eighties of the last century, 1.5 million tons of cotton fiber, 32 thousand tons of wet cocoons, and 2.5 thousand tons of raw silk were grown in our country. If only 5-6% of cotton fiber is processed in textile enterprises, the remaining fiber is exported as raw material. Silk raw materials are fully processed to produce national fabrics and classic crepe fabrics. At the same time, the production of ready-made sewing and knitting products from local fabrics, especially the production of knitted products, is not organized at the required level, the capacity of the enterprise, modern equipment, scientific innovations are not being introduced, the production of products produced by production enterprises is not in demand. It should be noted that it is not at the level. [2-5]. It should be noted that the production of knitted products is not organized at the level of demand, the capacity of the enterprise, modern equipment, and scientific innovations are not being introduced, and the production of products produced by production enterprises is not at the level of demand. [2-5]. It should be noted that the production of knitted products is not organized at the level of demand, the capacity of the enterprise, modern equipment, and scientific innovations are not being introduced, and the production of products produced by production enterprises is not at the level of demand. [2-5].

The fungus in the cocoon brought to the preparation points is alive. In order for cocoon factories to operate continuously throughout the year and for the cocoon to be preserved throughout the year, it is necessary to kill and dry it. In order to provide raw materials for cocoon factories throughout the year, the pulp inside the cocoon is killed and then dried. A living sponge inside a cocoon can be harvested in a number of ways. Including direct sunlight, hot air (at least 60°C) with hot water vapor, with vapors of various toxic substances, radioactive rays, different voltages and different It can be done under the influence of electric current and other chemical and physical effects. In production, the dome of the cocoon is processed at the initial processing points in only two ways: killed by steaming the cocoons in hot steam, then air drying and exposing the cocoons to hot air. Otherwise, the wet cocoon will mold quickly and the cocoon will be of poor quality if the live sponge can butterfly and puncture the shell, rendering the cocoon unwashable, or if not killed and dried.

Live cocoons are delivered from cocoons, farms to district and inter-district cocoon reception points or directly to cocoon pre-processing bases. The following activities are carried out at the cocoon reception bases:

1. receiving cocoons from worm breeders;

2. determining the weight and quality of cocoons;

3. preparation of payment documents for cocoons delivered with cocoon suppliers;

4. killing and drying the mushrooms of the delivered cocoons;

5. storage of cocoons before delivery to industrial enterprises;

6. Hand over dry cocoons to factory representatives.

The type of cocoon received is determined in the laboratory. A special standard has been introduced for live cocoons of white cocoon breeds and hybrids of mulberry silkworm prepared at cocoon pre-processing bases or reception points. According to this standard, living cocoons of mulberry silkworm are divided into I,

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II grade, non-standard, non-grade and black cocoons depending on the quality of the shell. Varietal cocoon mixture should be kept separately according to the breed or hybrid of the worm. The period of storage of a live cocoon should not exceed two days from the time of receipt from the farm or cocoon provider until the cocoon is killed. After 2-3 days after cocooning, silkworms turn into cocoons, and after 12-14 days the cocoons turn into butterflies and pierce the cocoon.

MATERIALS AND METHODS

In order to provide raw materials for cocoon factories throughout the year, the pulp inside the cocoon is killed and then dried. A living sponge inside a cocoon can be harvested in a number of ways. Including direct sunlight, hot air (at least 60°C) with hot water vapor, with vapors of various toxic substances, radioactive rays, different voltages and different It can be done under the influence of electric current and other chemical and physical effects. In production, cocoon foam is removed at primary processing points in only two ways: by steaming the cocoon with hot steam, then air drying, and by exposing the cocoon to hot air.

When the cocoons die, they are carted out of the chamber. After 10-15 minutes, the bags are removed from the trolley and cooled for 20 minutes. There, the cocoons are dried in the open air for a month or two. Each reception point must be equipped with:

1. Sufficient cages and beds for live cocoons;

2. Four separate buildings:

a) waiting place;

b) reception porch;

c) porch where the received cocoon is kept;

g) laboratory for analysis of samples taken from batches of cocoons.

The cocoon delivery waiting area should have space for partial sorting of the cocoons to be delivered before receiving them and enough beds to hold at least ten batches of cocoons. On the ground in the waiting area, a border is written. The total level of the laying area is determined in advance depending on the number of live cocoons arriving during the day. The shelter for the received cocoon serves to store the received live cocoon for one day. The place reserved for the storage of graded and ungraded cocoons is a paved, covered building or porch, which should be protected from wind, rain and sunlight. In addition, black cocoons are stored in an open area at least 200 m away from the place where grade cocoons are stored. During the storage of live cocoons, their mass decreases. The decrease in the mass of live cocoons during one day is determined by the Republican Cocooning Department as 1.25%, based on many years of scientific observations and production experience. Such a decrease in the mass of the cocoon occurs due to the decrease in the mass of the sponge body, more precisely, due to the consumption of nutrients in the sponge body for the physiological process that occurs during the transformation of the sponge into a butterfly.

The fungus in the cocoon brought to the preparation points is alive. For continuous operation of cocoon factories throughout the year and for cocoon storage throughout the year, it is necessary to animate and dry it [6-8].

Otherwise, the wet cocoon will mold quickly and the cocoon will be of poor quality if the live sponge can butterfly and puncture the shell, rendering the cocoon not washable, or if not killed and dried. Therefore, from the cocoon to the New Year season, raw silk is

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produced continuously throughout the year [9]. Deadening the living cocoon, reducing the high moisture content in it, is the process of pre-processing the cocoon. In the implementation of this process, it is necessary to maintain the physic co-chemical properties of fibroin and sericin in the cocoon shell, as well as the natural technological and physical-mechanical properties of the cocoon thread [10].

The cocoon line consists of protein compounds - fibrion and sericin, whose molecule consists of a large number of amino acid chains. The molecular length gives natural silk high elasticity and flexibility. Fibroin is resistant to enzymes, insoluble in alcohol, ether and other solutions, resistant to weak acids, swells in water, but does not change its structure [11, 12].

RESULTS AND DISCUSSIONS

Since sericin, which binds two fibrin threads, is also a protein, its physical, mechanical and chemical properties depend on the drying regime and storage conditions of the cocoon.

Sericin begins to dissolve in water at a temperature of about 70 C, dissolves in acid and base solutions. Due to its resistance to certain enzymes, it can be degraded by microorganisms. The absorption and solubility of sericin in water is significantly affected when washing cocoons [13]. These technological parameters depend on their initial processing.

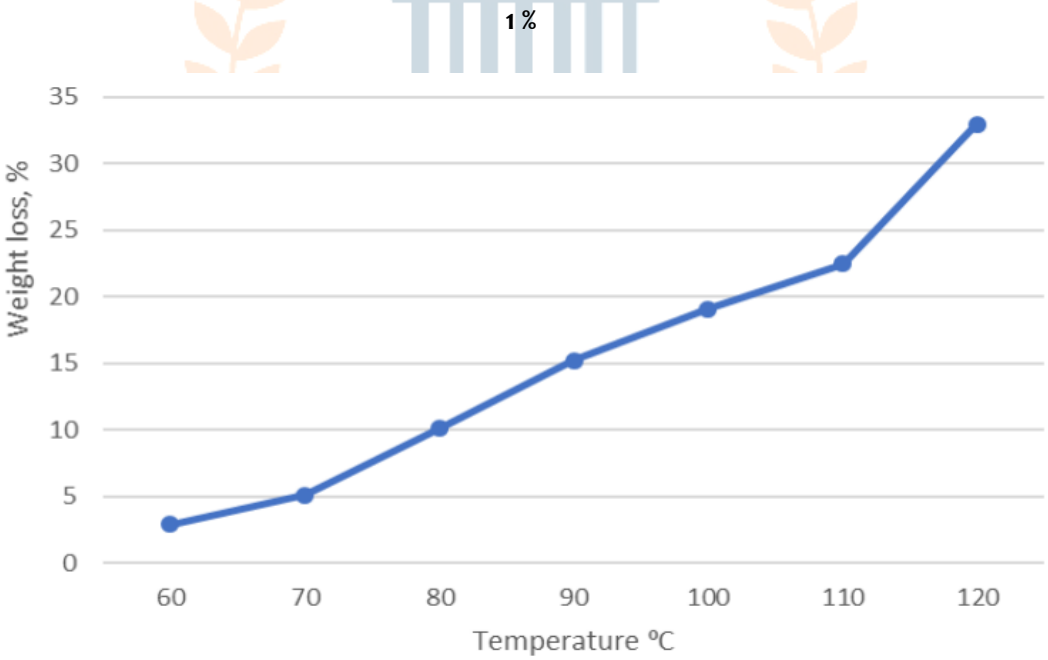

Figure 1. Graph of weight loss after processing cocoons at different temperatures for 60 minutes,

As can be seen from Figure 1, we can see that the weight loss increases with increasing temperature. However, the higher the temperature, the worse the properties of the shell can be. To verify the above, the microscopic appearance of the cocoon shell treated at different temperatures was analyzed. The results are presented in the table below (Table 1). To date, there

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are several methods of preliminary processing of cocoons, which can be divided into two groups, depending on the technology of inanimation and drying of living cocoons, separately or in parallel.

In the first group - the living cocoon is only killed, so dead cocoons with the cocoon are dried on shaded racks. These include processing methods using steam, chemicals, sealing, gamma rays, and cold storage.

In the second group - the above processes are equal, that is, the living cocoon is dried with anesthesia. These include sunlight, vacuum, high frequency (HF), hot air (convective) and infrared light.

Due to the structure of the cocoon, the shell and the air space inside it, as well as the foam, undergo a series of resistances before the high-temperature hot air supplied to it affects the dome. The resulting hot air requires a long time and high temperature to kill the fungus and evaporate the liquid inside. This leads to changes in the natural properties of the cocoon shell and the sponge [14-21].

Cocoon factories work year-round. The silkworm from the previous year's cocoon continues until the next year's produced cocoon arrives. Sponges are killed so that butterflies do not emerge from the cocoons. But this alone is not enough to keep the cocoon in good quality for a long time. The body of mushrooms consists of 70% water. The cocoon killed by the mushroom is stored for a long time. Dead mushrooms rot and destroy the cocoons. Therefore, the mushrooms should be killed, and then the dried cocoons should be stored well. Cocoons received from suppliers on the basis of preliminary processing of cocoons are delivered to processing points on the same day, cocoons must be destroyed within two days from the date of receipt. In the process of anesthetizing and drying the living cocoon, the high-temperature hot air that affects it for a long time has a negative effect on the technological properties of the cocoon shell and reduces the amount of raw silk. or the need to carry out scientific research on modernization and improvement.

CONCLUSION

Analyzing the pretreatment method for the cocoon, the results of processing method 2 (fumigation) and 3 (infrared rays) showed that the results were almost close to each other, and the hot air treatment had a significant effect on the dissolution. showed sericin in the shell. The fumigation method of anesthetizing the sponge and drying it in the shade preserves the properties of the shell well, but the main drawback is that the release of chemicals retained in the cocoon during cocoon drying has a negative effect on the health of workers. . In the 3rd option, complete drying in the shade by anesthetizing the live cocoon sponge under the influence of infrared rays provides good bending, evaporation and good rinsing during the rinsing process due to the well-preserved technological properties of sericin.

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