



ISSN: 2350-0328

**International Journal of Advanced Research in Science,
Engineering and Technology**

Vol. 5, Issue 12, December 2018

Investigation of Primary Processing Technology of Re-Grown Cocoons

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ABSTRACT: In this article is devoted to the study of the primary processing technology of cocoons in the spring and autumn seasons. The results of indicators of weight loss of silkworm cocoon are given. In addition, there are presented results of physic-mechanical indicators of the cocoon shell for various modes of primary processing of cocoons.

KEY WORDS: Cocoons, Spring and autumn seasons, Primary processing technology, Physico-mechanical indicators, Cocoon shell.

I. INTRODUCTION

The initiative of our President Shavkat Mirziyoyev forms the institutional and legal foundation of the organization on the basis of modern requirements. Initially, with an order dated March 29, 2017 organized a specialized organization “Uzbekipaksanoat” (Uzbek Silk Industry) association which responsible for whole process starting from silkworm production and ending deep processing of raw materials. On January 12, 2018 our president made a decision “on measures for reinforced development of sericulture industry in our Republic” and on December 4 “on additional measures for maintenance of development of sericulture industry in our Republic”. These decisions are aimed at such long-term plans as providing a number of reliefs and benefits to enterprises engaged in this activity, approval of large investment projects, a phased transition of production to the cluster method, as well as to stimulate the creation of new intensive mulberry plantations, attracting direct investment in the industry, widespread introduction advanced technologies, innovative ideas, scientific developments and scientific achievements, the production of finished competitive silk products with added the cost and additional support propagation of their species..

As well as, such urgent tasks are being carried out as the production of environmentally friendly and therapeutic tea from mulberry leaves, the creation of innovative coconut, the development of poultry farming, beekeeping in rabbit breeding in mulberry trees, the cultivation of agricultural products, the production of oil from the silkworm pupa for the cosmetic and medical industry, the organization home-based cases in tourist territories.

II. SIGNIFICANCE OF THE SYSTEM

It is known that, the quality of the finished product requires a properly selected raw material and a gradual technological process. To date, organized joint ventures for the production of silk, they equipped with modern machine-tools. But physical and cultural aging of the technical level of aggregates in bases of primary processing of cocoons partially adversely affect the technological features of the bark of the cocoon and the pupa during a long stay under the influence of high-grade warm air during the initial processing of the cocoon. (1).

III. LITERATURE SURVEY

Considering this, the technology of cocoons primary processing grown in spring and autumn seasons is being investigated.

Main processes of technology of cocoons primary processing is the necrosis of a living cocoon pupa and drying. Due to the fact that the composition of the living cocoon has a high level of humidity, if the cocoon pupa is deadened but not dried, the wet cocoon will quickly fill up and spoil the quality of the bark. Therefore, it is important to dry the primary

moisture content of the cocoon to standard moisture. Nowadays, in our republic at the primary cocoon processing base, this process is carried out under high temperature.

IV. METHODOLOGY

Taking into account the above, preliminary experiments were conducted in the database for the preliminary processing of the cocoon of Urtachirchik District, Tashkent Region. And the technological properties of cocoons were studied in the “Centexuz” Testing Center of the Institute and the laboratory room of the “Silk technology” department of modern equipment.

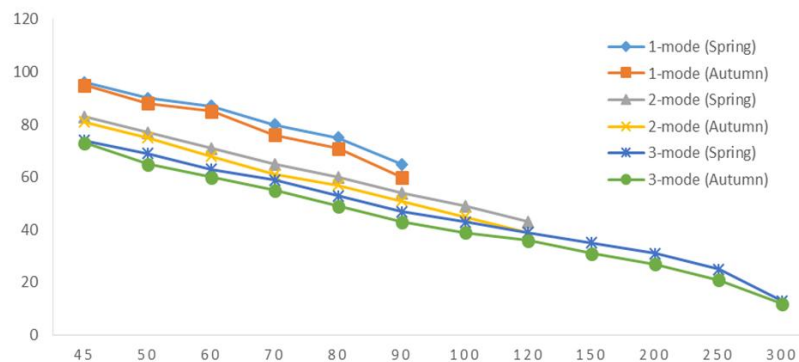


Fig 1. Chart of weight loss cocoon grown in a repeated season as a result of processing in hot weather of different temperatures.

In the course of research, experiments were conducted in the spring and autumn periods. Samples of living cocoons of the Uzbekistan 5 breed of the same caliber, made in both periods, were divided into three variants, and processed in three variants (modes). The experiment was carried out as follows: in the first embodiment, at a temperature of 90 degrees Celsius, for 1.5 hours (death of the pupa) and drying in a shadow dryer for 25-30 days, in the second variant, half-drying at a temperature of 110 degrees Celsius for 1.5 -2.0 hours and complete drying in a shadow dryer for 24-28 days, in the third embodiment, complete drying at a temperature of 130 degrees Celsius for 4.5-5 hours.

V. EXPERIMENTAL RESULTS

It is known that the loss of moisture in the composition of the cocoon is determined by a decrease in its weight. During the experiments, the change in the weight of the cocoon in different modes as a result of processing the cocoons of silkworms that ate in the spring and repeat season was studied. (Fig 1).

From the results it can be seen that the loss of moisture in the composition of spring and re-grown cocoons is connected, on the one hand, with time, as well as with the temperature of hot air acting on the cocoon.

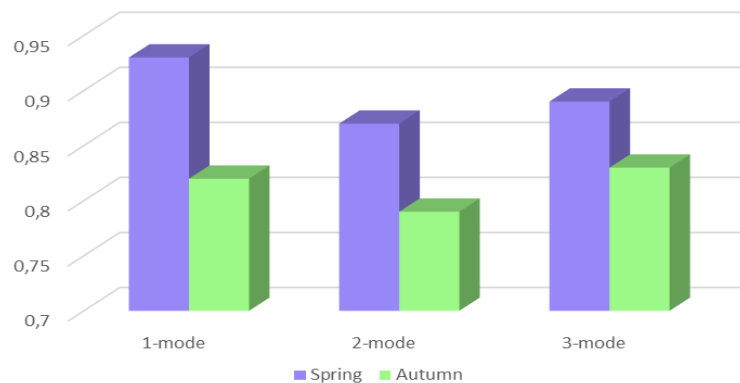


Fig 2. The thickness of the bark of cocoons grown in spring and autumn.

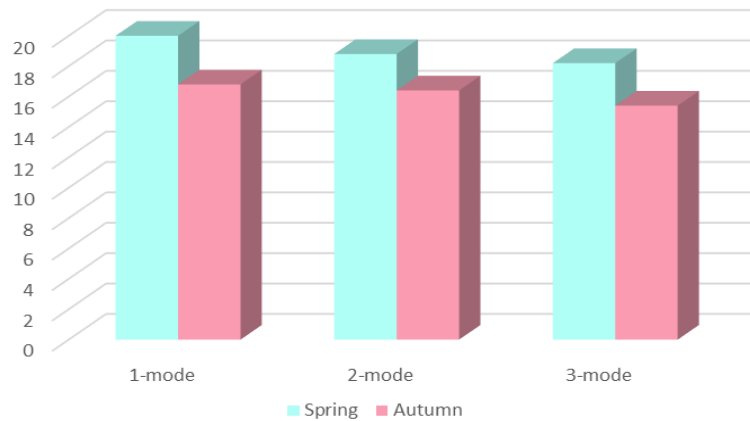


Fig 3. The strength of the bark of cocoons grown in the spring and autumn season, mg

The thickness and strength of the bark of the treated dry cocoons in various parts were checked. Using the strength of the cocoon bark, we can determine the density of silks on the bark of a certain area. This indicator is associated with technological properties, the weight of 5 disks with a diameter of 10 mm, cut from the bark of the cocoon, was determined. The values of bark strength were also different in different parts of the bark. According to the indicators, although the strength of the cocoon was different in different parts of the cocoon, it was found that, on average, this indicator was almost the same (Fig. 2, 3)

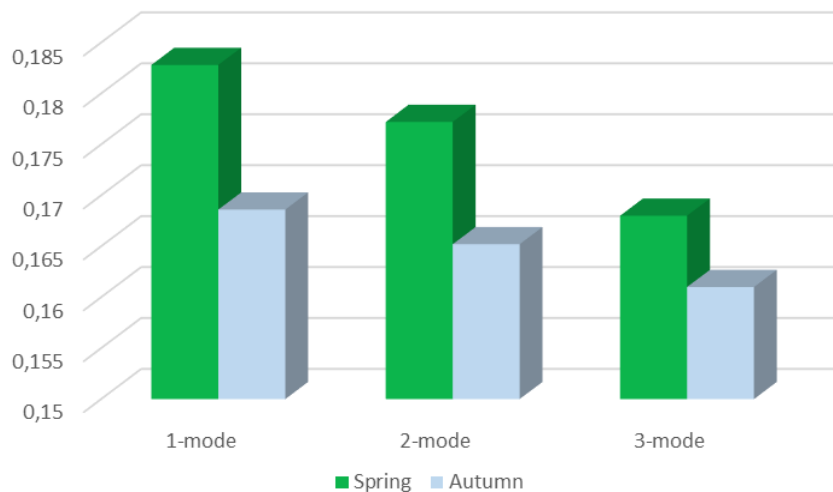


Fig 4. Water conductivity index of cocoons grown in the spring and autumn period, l/cm² sec.

The degree of conductivity of the water of the cocoon bark is one of the technological properties that provides the basis for the production of high-quality raw materials during the initial processing and scutching. In the course of the experiments, the conductivity property of water samples of the cocoon bark was studied (Fig 4). Analyzes showed that the conductivity of the water of the cocoons grown in the repeat season exceeds the conductivity of the water of the cocoons grown in the spring season. And this provides an opportunity to increase the quality of produced cocoon raw materials.

VI. CONCLUSION AND FUTURE WORK

Pretreatment of a living cocoon is a complex process, where an intensive exchange of moisture and heat occurs in the gap between the substance of drying, bark and pupa. Therefore, in the process of mortality of the pupa and the loss of moisture in its composition, the direct involvement of the cocoon bark, it is required to preserve the technological properties of the cocoon as close as possible to natural and rational use of the energy consumed by examining the



ISSN: 2350-0328

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process of pre-processing the cocoon based on the laws of heat, correct selection. This provides a basis for producing high-quality raw materials from cocoons, preserving the natural properties of the cocoon pupa and making wide use of them in the food industry, medicine, perfumery, poultry farming and fish farming by extracting oils and proteins from them.

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