INVESTIGATION OF THE QUALITY INDICATORS OF RAW SILK WITH A HIGH LINEAR DENSITY

Islambekova Nigora Murtozaevna[1]
Professor of the Department of Silk Technology
Khaydarov Sanat Sunnatovich[2]
Assistant of the Department of Silk Technology
Tashkent Institute of Textile and Light Industry
E-mail: khss1515@mail.ru

Annotation. *This article identifies the number of varieties of hybrid cocoons by season - Musaffo tola-2, Mayin tola-1, China-106, 37- 43 % of raw silk was obtained from the cocoons during the washing of the cocoons of suitable grade according to the established technological map, and the highest value was obtained by Musaffo tola -1. The quality indicators of high-density raw silk obtained from them were studied, and it was determined as a result of experiments that the obtained 37.2 tex tured raw silk corresponds to the navigation UzDSt 3313 2018 2A.*

Key words: *cocoon, hybrid, raw silk, high linear density, Musaffo tola -2, Mayin tola -1, China -106,*

1. INTRODUCTION

At present, large-scale work is being done to raise the country's silk industry to a new level, measures are being taken to increase the efficiency of the industry, to produce more silk fibers using as few resources as possible and using innovative methods. In this regard, scientists have carried out a number of scientific and practical work, paying special attention to the quality of products. In all respects, the linear density and quality of raw silk are important factors in the production of quality products [1].

Natural silk raw material has complex properties, that is, textile products made from it represent its high physical-mechanical and consumer properties. The natural silk has a beautiful shiny appearance, which gives the cocoon breed, it depends on how the silkworm is cared for, the method of evaporation, how the silk is spun and dried.

Just like the cocoon, the raw silk is divided into white and yellow (glitter) colors. Green and pink yarns are relatively rare in silk raw materials. Our country produces mainly white silk raw materials. Accordingly, in 2017-2020 0,58 *%* of colored cocoons and 99,42 *%* of white cocoons were grown.

Because silk raw material is a complex yarn, consisting of several fine cocoon yarns, a more accurate characteristic of the density is the specific mass, which is about 1*g/cm³*. Silk raw material does not have the properties of heat and electrical conductivity, so it is used as an insulating material in the electrical industry. Silk has a high hygroscopic property and a moisture content of 11% under normal conditions. Silk has good mechanical properties. The relative tensile load depends on the type and navigation of the silk raw material and varies from 26 to 38 sN / tex depending on the method of spinning, and the elongation before breaking varies from 15 to 23% [2,3,4].

2. MAIN PART

Nowadays, the focus is on cocoon production, and cocoons are grown seasonally in order to increase the amount of silk. In order to determine the properties of silk in our research work, we selected three seasons of the four seasons cocoons currently grown and the following from cocoon breed and hybrids. Qualitative selection of the obtained samples and determination of the quantity of varieties.

The amount of varieties in different hybrid cocoons by season

Table 1

Hybrids	Season 1		Season 2		Season 3	
	Quality	Defective	Quality	Defective	Quality	Defective
Musaffo tola -2	93,8	6,2	91,9	8,1	86,7	13,3
Mayin tola -1	93,6	6,4	91,7	8,3	86,5	13,5
K-108	92,9	7,1	90,8	9,2	85,7	17,3
China -106	91,7	8,3	89,8	10,2	83,9	16,1

The results showed that the first season saw the emergence of a large number of varietal cocoons. Musafo tola -2 and Mayin tola -1 were the most common varieties of hybrids. With the transition from season to season, it has been observed that the hybrid K-108 has more defective cocoons in China 106.

In our research, we studied the effect of the addition of cocoon varieties on their specific consumption and ductility. The studies were conducted on regionalized hybrids of Musaffo tola -2 and China -106.

The cocooning was carried out according to the parameters given in the technological map. Studies were conducted on varietal and non-varietal cocoons.

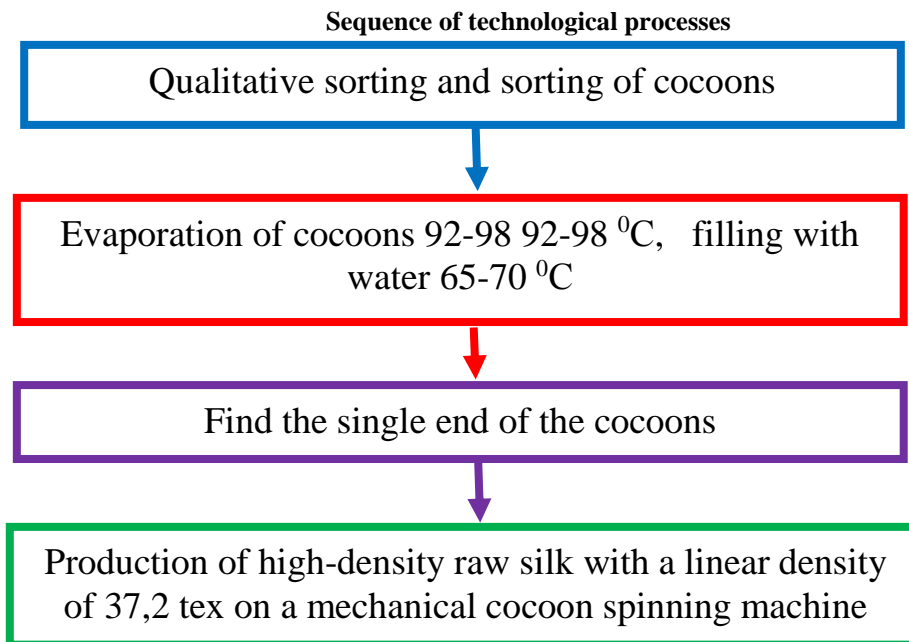**Influence of specific consumption and washing on mixing of cocoons by variety**

Table 2

Cocoon varieties	Specific consumption, *kg*	Shell peeling, *%*

	Musaffo tola- 2	China -106	Musaffo tola- 2	China -106
I - varieties	2,83	3,00	83,1	74,8
I+II varieties	3,00	3,20	74,6	67,4
I+II+ a mixture of defective cocoons suitable for washing	3,15	3,30	61	60

The results showed that, of course, the separate consumption of each variety had a positive effect on the specific consumption and the washing of the shell. By mixing grades I and II, we will be able to expand the production batch, as well as produce raw silk of the highest grade. Therefore, we consider it expedient to wash Musaffo tola - 2 hybrid cocoons, which have good results on the above indicators, in a separate technological mode after calibration.

According to the established technological map, the silkworms were spun at a speed of 90-100 *m/min*, the temperature of the cocoons was 50-55 ^{0}C, and the length of the cocoons was 4-5 *sm*.

Sequence of technological processes

Qualitative sorting and sorting of cocoons

↓

Evaporation of cocoons 92-98 92-98 ^{0}C, filling with water 65-70 ^{0}C

↓

Find the single end of the cocoons

↓

Production of high-density raw silk with a linear density of 37,2 tex on a mechanical cocoon spinning machine

However, experiments have shown that linear density control reduces the unevenness of raw silk in order to obtain high-density raw silk from them.

The results were studied in accordance with the requirements of the standard UzDSt 3313: 2018 for raw silk.

According to the standard, all categories of raw silk are divided into seven grades: 4A, 3A, 2A, A, V, S, D. If the highest quality silk belongs to 4A, the lowest grade is D [6]. .

Raw silk is divided into three categories according to its quality, depending on its linear density.

Type 1: 2 tex and below; Type 2: 2.1 tex to 3.6 tex; Type 3: 3.7 tex and higher [4].

We use category 3 for high linear density raw silk.

The following table compares the results obtained during the experiment

Table 3

Symptoms	37.2 tex tured raw silk quality indicators	
	2A standard	2A experience
Linear density deviation (tex), (10,75; 13,33; 16,60) tex	0,69	0,76
Maximum deviation (10,75; 13,33; 16,60) tex	2,05	2,04
1- Unevenness	190	193
2- Unevenness	26	24
:anliness from major defects, at least %	93	92
From minor flaws cleanliness, at least %	90	89

Worst cleanliness, at least %		
	83	81
Symptoms	Class	
	(3) standart	(3) experience
3- unevenness	2	2
Symptoms	Sinfi	
	(4) standart	(4) experience
Rewrapping capacity, maximum number of breaks (10,75; 13,33; 16,60) tex	20 15	19 14
Symptoms	Sinfi	
	(1) standart	experience
Relative breaking power, sN/tex Relative elongation at break, % The gypsy, the number of walks of the carriage	40 and above 18 and above	40 and above 18 and above

3. CONCLUSION

The research was conducted on a mixture of varieties. The results showed that 37.2 tex raw silk with a high linear density corresponds to 2A navigation.

In the production of raw silk with high linear density from pure hybrid fiber-2, China-106 hybrids, it was recommended to spin the cocoon according to the variety of varieties, and a separate technology was developed for each variety.

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