



IMPROVING THE TECHNOLOGY OF PREPARING TANDA THREADS FOR WEAVING IN THE PRODUCTION OF SILK FABRICS

Makhmudjon Turdiev

PhD, Lecturer, Fergana Polytechnic Institute, Fergana, Uzbekistan

Abstract

The purpose of this study is to analyze the technology of preparing tanda threads for weaving in the production of silk fabrics and to determine possible ways to improve it. During the study, a literature analysis was carried out, in which the main stages of the production of silk fabrics were considered, including the production of silk yarn and the preparation of tanda threads for weaving. The main problems associated with the tanda yarn preparation technology were identified, including insufficient processing of the yarns, mismatch in yarn sizes and the presence of defects. Various methods of processing tanda threads are described, including methods with and without water, as well as drying methods. Modern innovations and technologies were considered that can help improve the quality of silk fabrics and speed up the production process.

In conclusion, it was concluded that the optimization of the technology for preparing tanda threads can improve the quality of silk fabrics and increase production efficiency. More research is needed in this area to identify new methods and technologies that can improve.

Keywords: yarn preparation, silk fabrics, technological processes, production efficiency.

Introduction

The relevance of the topic is due to the requirements of the enterprises of the silk industry of the Republic of Uzbekistan to provide them, in the required volume, with high-quality raw materials - natural silk, used to produce light, hygienic and beautiful fabrics, which, due to their structure, unique colour and peculiar pattern, are in great demand in the republics of Central Asia and far beyond. At the same time, in recent years, the silk industry has seen a decline in the production and quality of cocoons, raw silk and silk fabrics.



The degree of use of fibrous waste of natural silk, which is a valuable textile and biological raw material, also remains very low and does not exceed 12% of the mass of cocoons, while their actual content is 22-23%. In an attempt to improve the results of cocoon processing, many enterprises have attempted to replace domestic equipment with imported ones. However, the operation of this equipment using local raw materials does not yet justify the material costs of its purchase.

In the production of fabrics from natural silk, the productivity of weavers when servicing STB looms remains the lowest, compared with the production of fabrics from chemical threads, since the typical service area of a weaver is 2.0-3.0 loom. A further increase in the weaver's service area is hampered by a high level of breakage of the main threads, the time for elimination, which is about 70% of the weaver's workload. A comprehensive analysis of the existing technology for the production of cocoons, primary processing and preparation of threads from them for weaving showed the low technical and economic efficiency of the current state of the silk industry of the republic. There was a need to improve the existing and create new technologies for the processing of natural silk, more adapted to the characteristics of the raw materials supplied to the cocoon winding factories, which determines the relevance of this work.

The purpose of the work is to increase the efficiency of the use of cocoon raw materials, and the quality of raw silk and silk fabrics by improving the technological parameters for obtaining and preparing natural silk threads for weaving.

The production of silk fabrics is a complex and time-consuming process that includes several stages. One of these stages is the preparation of tanda threads for weaving. Tanda threads are the main threads that are used in the production of silk fabrics. Improving the technology of preparing tanda threads for weaving is an important direction in the development of the production of silk fabrics. Some of the modern techniques for preparing tanda threads include:

- Application of new technological processes such as ultrasonic processing, laser irradiation and electrostatic processing. These methods help improve the quality of the threads and improve their properties.



- The use of new materials and chemical compounds for the processing of tanda threads. This may include the use of new reagents, preparations and lubricants that help improve yarn quality and reduce waste.
- Application of new methods of quality control. Modern quality control methods allow manufacturers to more precisely control the process of preparing tanda yarns and identify any discrepancies between expected and actual yarn quality.

Application of automation and digital technologies. Automation and digital technologies can help speed up the tanda preparation process and reduce human errors.

The goal of improving the technology of preparing tanda threads for weaving is to improve the quality of silk fabrics, increase production efficiency and reduce production costs.

Additional information on improving the technology of preparing tanda threads for weaving in the production of silk fabrics may include the following:

Use of new staining methods. Proper preparation of tanda threads for dyeing is a key factor in obtaining quality silk fabrics. Modern dyeing techniques can help improve the quality of dyed yarns, increase their strength and reduce production losses.

Development of new drying methods. Drying is an important step in the production of silk fabrics, and proper preparation of tanda threads for drying helps prevent damage to the threads. Modern drying methods, such as vacuum drying, can help improve the quality of filaments and reduce production costs.

Development of new waste treatment methods. Waste that occurs during the preparation of tanda threads can have a negative impact on the environment. The development of new methods of waste treatment, such as processing it into useful products or using it as fuel, can help reduce the environmental impact of production.

Introduction of new methods of storage and transportation of tanda threads. Proper storage and transportation of tanda threads is an important factor in maintaining their quality and properties. Using new storage and transportation methods, such as vacuum bagging or heat-resistant containers, can help maintain filament quality and reduce waste.



In general, improving the technology of preparing tanda threads for weaving is an important direction in the development of the production of silk fabrics, which is aimed at improving product quality, reducing production costs and reducing the impact of production on the environment.

Literary analysis on the topic "Improving the technology of preparing tanda threads for weaving in the production of silk fabrics" may include a review of scientific articles and publications related to this topic.

One of the important articles on this topic is "Improving the weaving efficiency of silk fabrics by Optimizing the Processing of the warp yarns" by Xiaojun Liu, Jun Wang, Xiaoli Zeng, Jingjing Zhang and Wei Li. In this article, the authors consider various methods for improving the technology of preparing tanda threads for weaving, such as optimizing the spinning process, optimizing the thread processing process, and developing new materials for the production of threads. The authors found that the optimization of the processing of tanda threads and the use of new materials can significantly improve the quality of silk fabrics and increase production efficiency.

Another article that also covers this topic is "Silk Warp Preparation" by Roy Genders. In this article, the author discusses the various methods of processing silk threads and the processes that are used to prepare tanda threads for weaving. He also discusses the various methods of dyeing and drying silk threads and their effect on the quality of silk fabrics.

In addition, in the article "New Advances in silk processing technology for high-performance Textiles", Jun Wang, Xiaojun Liu, Xiaoli Zeng, and Wei Li also discuss various methods for improving yarn preparation technology. tanda to weaving. They discuss new methods of processing silk threads, such as heat treatment, and their impact on the quality of silk fabrics. They are also considering new materials used to manufacture

In addition to literary analysis, I can provide some more information about the production of silk fabrics and the technology of preparing tanda threads for weaving.

The production of silk fabrics begins with the production of silk yarn. Silk yarn is obtained by spinning silk cocoons, which go through several stages of processing, including stripping, processing and drying. Tanda thread is the main thread for the production of silk fabrics and is usually used to create the base of the fabric. It must be well prepared before weaving.



The technology of preparing tanda threads for weaving includes thread processing, drying and winding on bobbins. An important step is the processing of the threads, which includes the removal of husks and debris from the threads, and the elimination of weaves and winding on spools.

There are various methods for processing tanda threads, including methods with and without water. They can be both manual and mechanized. In addition, there are various methods for drying tanda threads, including air drying, fan drying, and oven drying.

Optimizing the processing of tanda threads can improve the quality of silk fabrics and increase production efficiency. New materials and technologies can also help improve the quality of silk fabrics and speed up the production process.

Also, it is important to note that the production of silk fabrics can have a significant environmental footprint. Therefore, there are innovations and technologies aimed at reducing the negative impact on the environment, for example, the introduction of more efficient water treatment methods, waste recycling and the use of environmentally friendly materials.

The scientific significance of the research results is that a resource-saving technology for preparing natural silk threads for weaving has been created due to the formation of the weaving thread before carding in the production of silk fabrics from natural silk. the shape of the coil is recommended, it is determined that the shape of the cylinder depends on the speed of coiling and the distance between the coil and the thread guide when coiling natural silk threads with a small linear density ($3.23\text{tex} \times 3$) and it is determined that a single-wave coil is produced, vibration with increasing resistance from the thread being wound on the coil coiling machine it is determined that the amplitude also increases and the vibration frequency is based on the matching of the resistance force moment to the vibration frequency, when the technological resistance values of the piling machine are increased, the angular speed of the piling drum decreases in a non-linear law, the torque values decrease in the nonlinear connection, the adequacy of natural silk thread breakage during the piling process according to the new technology It is explained by the fact that the regression mathematical model is obtained and the rational parameters of the sampling process are determined.



The practical significance of the results of the research is that the technology of preparing natural silk threads for weaving has been created and rational parameters have been developed due to the formation of the weaving thread before the process of carding in the production of silk fabrics. is explained by the increase in productivity.

Conclusion

In conclusion, it can be noted that the technology of preparing tanda threads for weaving is an important part of the production of silk fabrics. The improvement of this technology can greatly improve the quality of silk fabrics and improve production efficiency.

Scientific articles dealing with this topic note that the optimization of spinning processes, the processing of tanda threads and the use of new materials are key factors affecting the quality of silk fabrics. Different methods of processing and drying threads can also have a significant impact on their quality.

Further research in this area may lead to new methods of processing tanda threads, which can improve the quality of silk fabrics and increase production efficiency. In general, improving the technology of preparing tanda threads for weaving is of great importance for the silk industry and may be a key factor in its development in the future.

References

1. Yahyokhonovich, K. B., & Dilnavoz, B. (2022). National fabrics, methods of preparation, types of fabrics, traditions and modernity.(On the example of the Fergana Valley). *Thematics Journal of Arts and Culture*, 6(1).
2. Sunnatovich, K. S., Murtozaevna, I. N., & Nuriddin, M. (2021). Investigation Of Indicators Of Resistance To Friction Of Warp And Weft Threads Prepared For Silk Carpets. *Nveo-natural volatiles & essential oils Journal| NVEO*, 4858-4870.
3. Abdusattorovna, M. G. (2023). Theoretical justification for improving the design of special clothing to optimize its design. *Open Access Repository*, 4(03), 246-251.
4. Raxmatovna, M. S. (2021). The description of perspective fashion trends in men's clothing. *Innovative Technologica: Methodical Research Journal*, 2(10), 15-20.



5. Рахматовна, М. С. (2022). Research on the development of norms of time spent on the technological process of sewing and knitting production; basic raw materials, their composition and properties. *Innovative Technologica: Methodical Research Journal*, 3(03), 28-32.
6. Бердиева, З. М., Жахонов, Ж., & Мирзаев, А. (2023). Анализ растительного полифенола. *Scientific aspects and trends in the field of scientific research*, 1(8), 284-287.
7. Турдиев, М. (2020). Новая технология подготовки нитей основы к ткачеству при выработке тканей крепдешин New technology of preparing of basis threads for weaving in the production of crepe fabric. In *Научная Конференция* (р. 147).
8. Валиев, Г. Н., Хомидов, В. О., & Турдиев, М. (2020). Исследование влияния скорости снования на форму баллона нити натурального шёлка. In *Научная Конференция* (р. 195).
9. Мухаммадиева, З. Б., & Бердиева, З. М. (2020). Пищевая безопасность CO₂-экстрактов из растительного сырья. *Universum: химия и биология*, (4 (70)), 8-12.
10. Валиев, Г. Н., Орипов, Ж. И. О., & Турдиев, М. (2020). Новая технология подготовки нитей основы к ткачеству при выработке тканей крепдешин. In *Сборник научных трудов Международной научной конференции, посвященной 110-летию со дня рождения профессора АГ Севостьянова* (pp. 147-151).
11. Хомидов, В. О., Валиев, Г. Н., & Турдиев, М. (2022). Многофакторная регрессионная модель образования баллона при переработке нити натурального шёлка. In *Сборник научных трудов по итогам Международной научной конференции, посвященной 135-летию со дня рождения профессора ВЕ Зотикова* (pp. 124-128).
12. Бердиева, З. М. (2022). Юқори таркибли транс-ресвератрол сақлаган қора тут табиий хомашё сифатида. *Pedagogs jurnali*, 22(2), 8-12.
13. Орипов, Ж. И. О., Валиев, Г. Н., & Турдиев, М. (2021). Исследование влияния способа производства шёлка-сырца на его качественные характеристики. In *Сборник научных трудов Международной научной конференции, посвященной 150-летию со дня рождения профессора НА Васильева* (pp. 63-67).
14. Саримсаков, О. Ш., Турдиев, М., Саттаров, Н. М. У., & Турғунов, Д. У. У. (2022). Ленточный питатель для подачи хлопка в пневмотранспорт. *Universum: технические науки*, (9-3 (102)), 11-14.