Vital Annex: International Journal of Novel Research in Advanced Sciences (IJNRAS)
Volume: 01 Issue: 04 | 2022 ISSN: 2751-756X
http://innosci.org

Change in Unfairness Indicators of Cooked Yarn with Different Composition

Xudoyberdiev Mirqosim Rashidjon o'g'li, Raximov Xakim Karimovich
Assistent, Bukhara Engineering Technological Institute

Ochilov Tulkin Ashurovich
Doctor of technical sciences, professor, Tashkent Institute of Textile and Light Industry (Uzbekistan)

Aripova Olima Azimovna
Magistr, Bukhara Engineering Technological Institute

Annotation: in this article, the research work was carried out in the enterprises of Mergan tex LLC, Sharq Tex Lux LLC and "Karakol kumush kalava" LLC in Bukhara region. For it, 12.1 tex re-carding yarn was produced from 100% cotton fiber, 90% cotton fiber and 10% lavsan fiber mixture, 80% cotton fiber and 20% lavsan fiber mixture, 70% cotton fiber and 30% lavsan fiber mixture. . The physico-mechanical properties of the manufactured thread were determined using modern equipment at the CentexUz laboratory at the Tashkent Textile and Light Industry Institute.

Keywords: cotton fiber's elasticity properties, there are many types of unevenness, the introduction of advanced "cluster model", linear density, unevenness according to the number of fibers in the product cross-section or cross-sectional weights of different lengths, unevenness of the product by volume weight (density), unevenness according to the physico-mechanical properties of the product , strength, elasticity, elasticity, moisture, air permeability, electrical resistance, electrical resistance, size of electrical charges.

I. INTRODUCTION

Sewing threads with high physico-mechanical and good processing properties are needed for sewing special items in the world today. The quality of sewing threads determines the quality and reliability of clothes, the efficiency of technological processes of their preparation. The appearance and durability of clothes and other items depends to a certain extent on the hardness of sewing threads. Therefore, the quality of threads used in sewing is of great importance.

The quality of light industrial products is mainly determined by the properties of the material. In order to improve the technology and improve the quality of the product, it is necessary to know the assortment of sewing thread, which is the main tool for connecting parts of sewing products.

The choice of sewing threads mainly determines the quality and reliability of clothes and shoes. Information about the assortment of sewing threads, their main indicators is very necessary to ensure the production of competitive products.

The main goal of studying the assortment of sewing threads is their effective use, taking into account the structure and properties of the threads that need to be optimized in the product.

To ensure high and stable growth rates in the republic's textile and sewing industry, to attract and absorb foreign direct investment, to produce and export competitive products, to create new high-

tech jobs due to the implementation of strategically important modernization projects, Systematic works are being carried out to further deepen the structural reorganization aimed at technical and technological updating of enterprises, introduction of an advanced "cluster model". At the same time, a comprehensive analysis of the development of the textile and sewing-knitting industry, the changing state of the world market in the face of increased competition, requires state support of the industry, as well as the development and implementation of mechanisms for more stable and rapid development.

The textile industry is becoming one of the most powerful industries in the world. This is represented by the availability of raw materials, which is considered the most basic, decisive factor necessary for the development of the industry.

1 type of Namangan-77 selection type 4 cotton was used in the 100% cotton fiber carding method.

In the production of yarn from a mixture of cotton and lavsan fibers, roving from lavsan fiber at the enterprise was added to rovings made from 100% cotton fiber in the 2nd pass of the RSB-D 50 braiding machine, and yarns of different composition were obtained. The sequence of the yarn production process from a mixture of cotton and lavsan fibers is presented in Fig. 1.

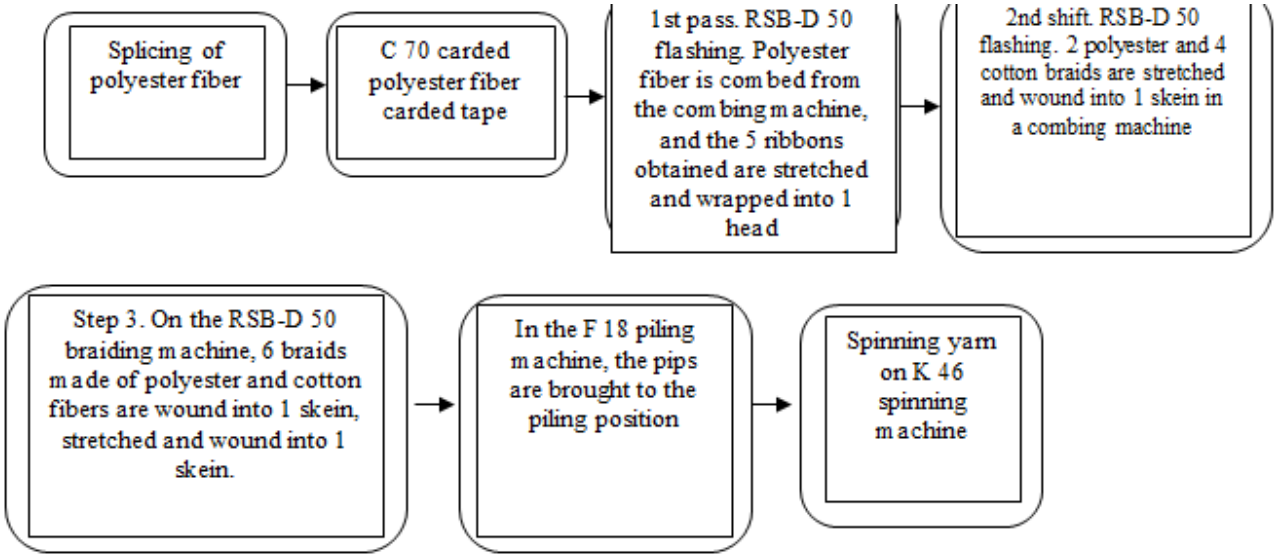

Figure 1. Technology of obtaining yarn from a mixture of cotton and lavsan fiber.

Before conducting research, all samples were stored in climatic conditions according to GOST 10681-75 standard.

As test options, yarns with a linear density of 12.1x2, 12.1x3 tex from the above four different types of yarns were produced in the VTS-08 double-twist knitting machine in the educational laboratory of the "Spinning Technology" department of the Tashkent Institute of Textiles and Light Industry, and the quality indicators were tested in the "CentexUz" laboratory and It was determined on the "Uster Tester-5" device of "UZTEX TASHKENT" LLC.

Based on the results of the research, the following symbols were used to construct graphs and histograms: 1-100% cotton thread; Yarn obtained from a mixture of 90% cotton fibers and 10% lavsan fibers; Yarn obtained from a mixture of 80% cotton fibers and 20% lavsan fibers; Yarn obtained from a mixture of 70% cotton fibers and 30% lavsan fibers.

Vital Annex: International Journal of Novel Research in Advanced Sciences (IJNRAS)
Volume: 01 Issue: 04 | 2022 ISSN: 2751-756X
http://innosci.org

Cotton fiber is the main raw material of the textile industry. Compared to other natural fibers, cotton fiber has a high elasticity. Threads of different thicknesses are obtained from it in spinning factories, and from these threads, mature, elegant and beautiful, colorful fabrics are produced.

Along with cotton fiber, the production of chemical fibers in spinning enterprises is growing rapidly. This makes it possible to further expand the raw material base of the textile industry of our republic and increase the range of manufactured products.

In spinning plants, yarn is spun from a mixture of different fibers, that is, special spinning systems are used to obtain yarn of a certain thickness and thickness. In order for the spun yarn to be of high quality and low cost, it is necessary to plan the spinning systems depending on the yarn spinning system, the quality of raw materials, especially the length and thinness of the fiber.

In order to produce high-quality gauze from cotton fiber, it is necessary to produce high-quality yarn. In order to produce high-quality yarn, there must be a well-organized and constantly functioning technical control in spinning enterprises.

Analyzing the unevenness of spinning products is very complicated. There are many types of roughness for spinning products: they are formed in the first stage of spinning and change in subsequent stages and add new types of roughness to it. Yarn roughness adds several components to it and affects the roughness of various stages of spinning production. Different forms of unevenness are related to each other. These factors make it difficult to change the causes of inequality.Each batch of yarn is checked according to standard and specifications before being sent to consumers. In addition, the production of the same level of products in the machines and the standard of yarn quality indicators are controlled.

Control of product linear density is carried out at various stages of spinning production. At the beginning, the mass of sections of constant length is determined and the linear density of the product is determined.

It determines the following types of unevenness in the change of its special properties along the length: unevenness according to the linear density, the number of fibers in the product cross-section or cross-sectional weights of different lengths, unevenness of the product according to its volumetric weight (density), unevenness according to the physical-mechanical properties of the product (strength, elasticity, elasticity, moisture, air permeability, electrical resistance, electrical resistance, size of electrical charges and hakoza).

In terms of linear density, uneven woven yarns lead to the formation of specific defects in production. Therefore, it is important to study and control the unevenness of spinning products under production conditions according to the above factors.

II. METHODOLOGY

For this reason, research work was carried out to determine the unevenness indicators of yarns. The ends and middle parts of his braiding machine were braided, and the unevenness indicators of the yarns obtained from it were determined, and the test results obtained are listed in Table 1.

Table 1. Changes in the quality indicators of yarns with different fiber content

№	Fiber content	U,%	CVm,%	-40%	-50%	+35%	+50%	+200%	H	Sh
1.	100% cotton yarn	14,16	18,21	590	55	2221	645	502	8,01	2,46
2.	Yarn obtained from a mixture of 90% cotton and 10% lavsan fibers									
	A pile placed on the edge	11,74	14,84	282	19,5	731	107,5	126	6,83	1,77

	of a pile machine									
	A comb placed in the middle of the combing machine	11,98	15,46	322	20,5	834	118,2	138	7,88	2,34
3.	Yarn obtained from a mixture of 80% cotton and 20% lavsan fibers									
	A pile placed on the edge of a pile machine	10,56	13,33	116,5	3,5	438,5	54	63	6,87	1,68
	A comb placed in the middle of the combing machine	11,46	14,28	122,7	4,7	467,8	65	77	7,82	2,25
4.	Yarn obtained from a mixture of 70% cotton and 30% lavsan fibers									
	A pile placed on the edge of a pile machine	9,78	12,41	24,5	0	364,5	43,0	62,0	5,84	1,47
	A comb placed in the middle of the combing machine	10,21	13,28	36,5	2,7	423,5	56,0	78,2	6,35	1,67

Variation of squared unevenness of threads, coefficient of variation, -40% thinning areas, -50% thinning areas, +35% thickening areas, +50% thickening areas, +200% thickening areas, hairiness and hairiness in Figures 1-4 given.

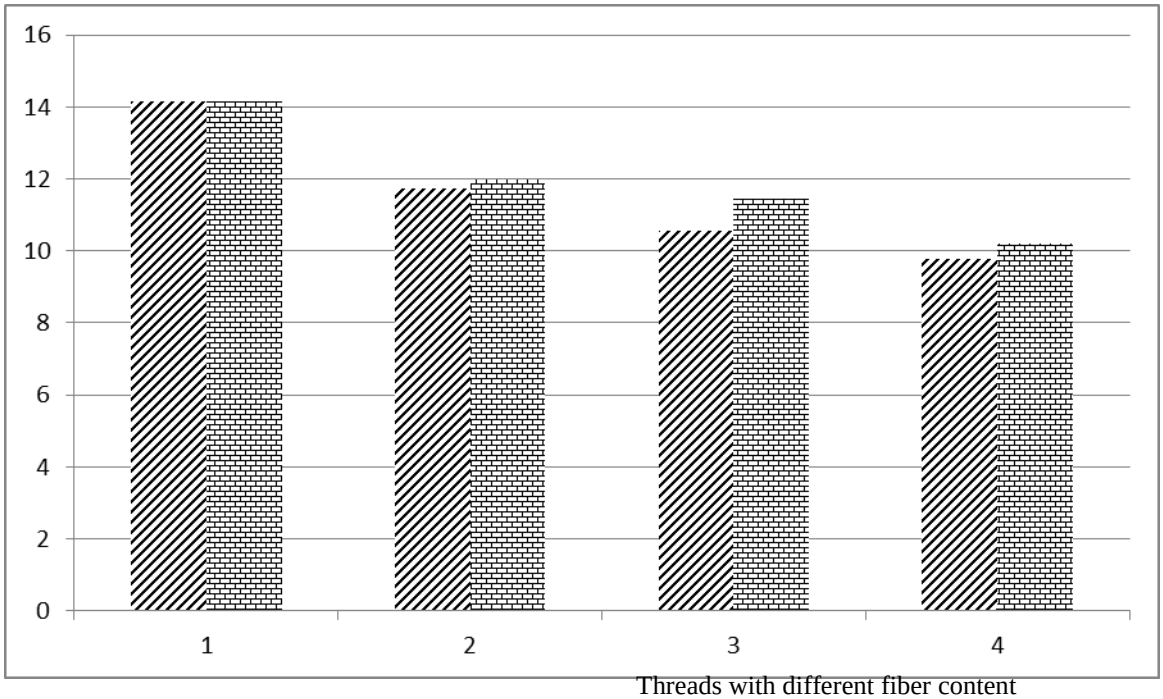

Figure 1. Changes in the unevenness of yarns with different fiber content.

Vital Annex: International Journal of Novel Research in Advanced Sciences (IJNRAS)
Volume: 01 Issue: 04 | 2022 ISSN: 2751-756X
http://innosci.org

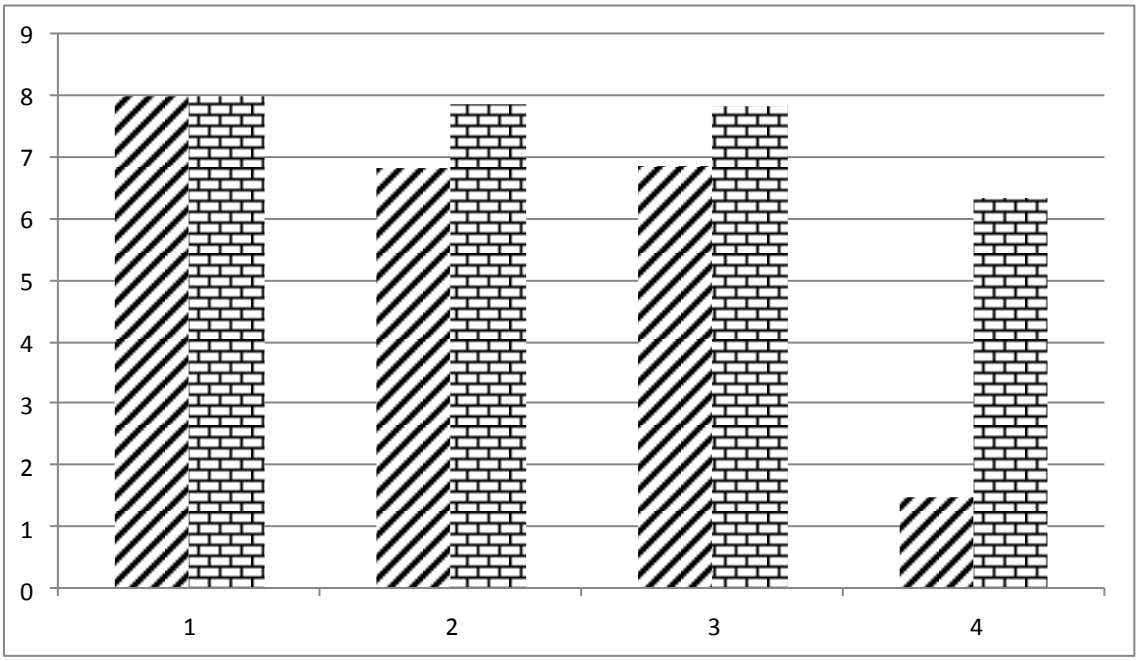

Figure 2. Changes in hairiness of yarns with different fiber content.

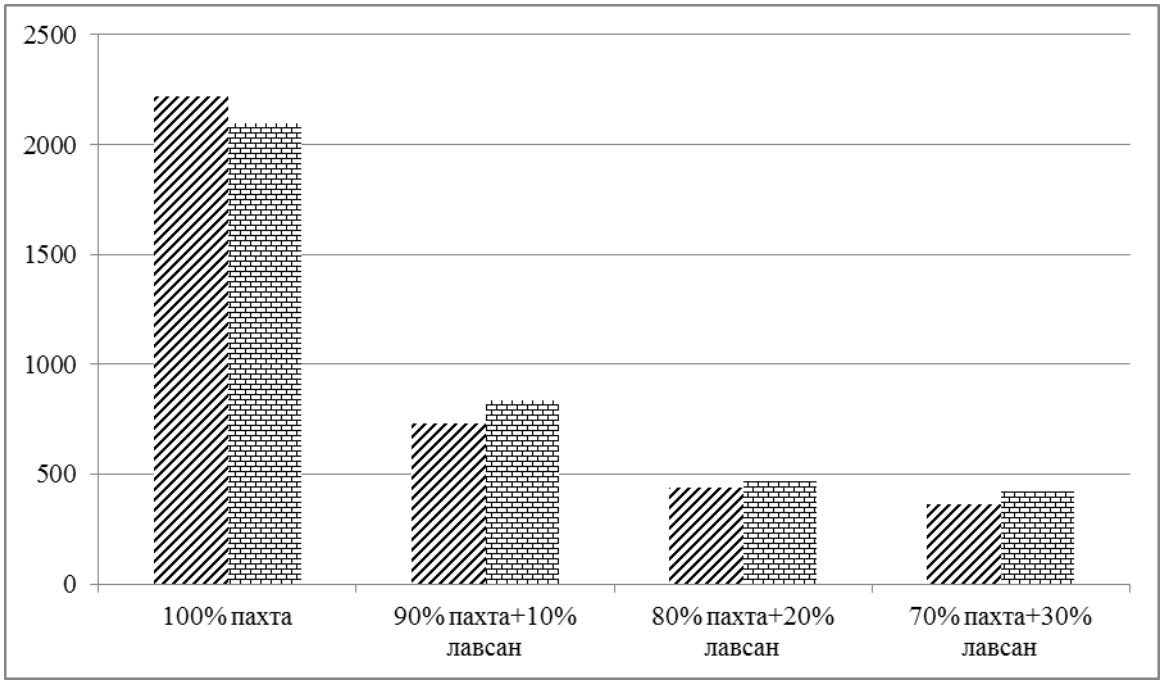

Figure 3. +35% change in thickened areas of yarns with different fiber content.

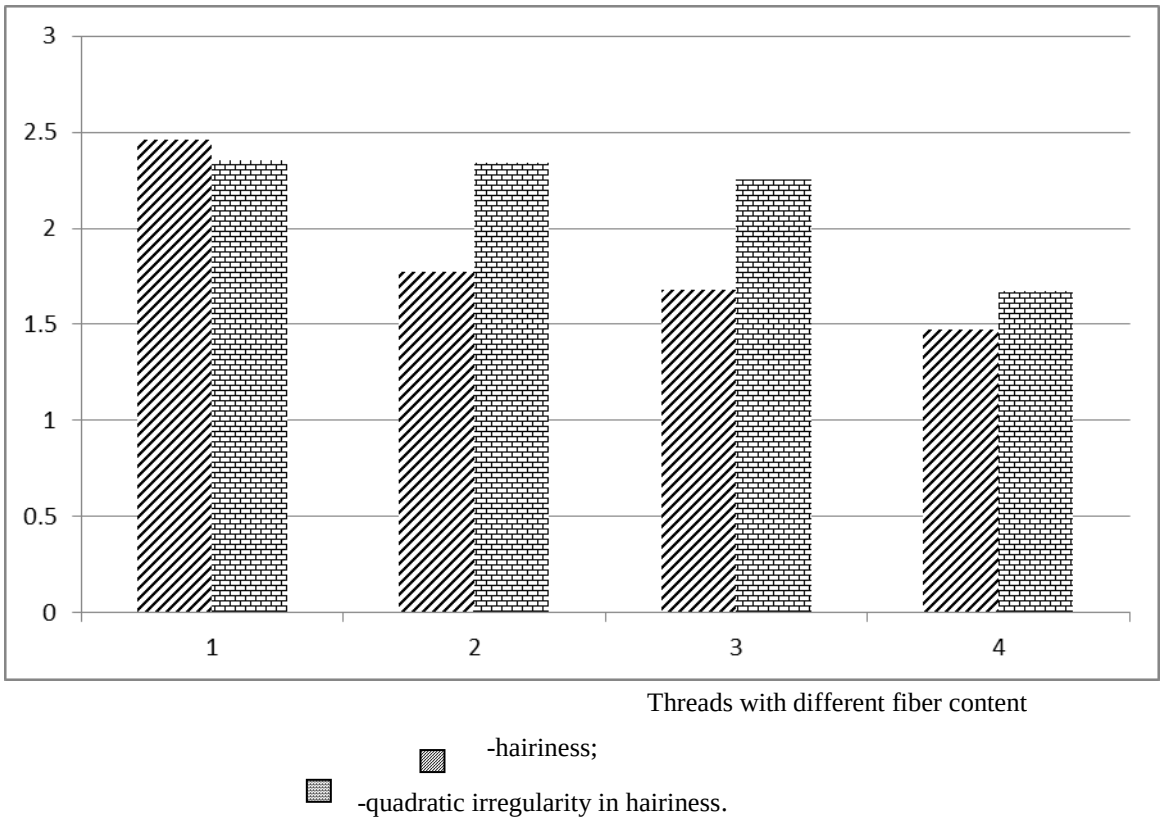

Figure 4. Variation of the quadratic roughness of yarns with different fiber content according to hairiness.

III. RESULTS AND DISCUSSION

In spinning machines, the more breaks during winding and forming, the higher the unevenness of the yarn. As a result of the increase in breakage of the threads, the job security of the workers increases, and it leads to a decrease in the productivity of the machines.

If we compare the results of the research with the indicators of yarns made from 100% cotton fibers, the unevenness of yarns made from a mixture of 90% cotton and 10% lavsan fibers is 17.1%, the coefficient of variation is 18.5%, -40% thinning areas are 52.2%, + 35% thickened areas decreased by 67.1%, hairiness by 14.6% and squared unevenness of hairiness by 28.1%, unevenness of yarns obtained from a mixture of 80% cotton and 20% lavsan fibers by 25.4%, coefficient of variation 26, by 8%, -40% thinning areas by 80.3%, +35% thickening areas by 80.3%, hairiness by 14.1% and squared roughness by hairiness by 31.8%, 30% with 70% cotton the unevenness of yarns obtained from a mixture of lavsan fibers increased by 31.0%, the coefficient of variation by 31.9%, -40% thinning areas by 96.0%, +35% thickening areas by 83.6%, hairiness by 27.0% and hairiness by squared unevenness decreased by 40.1%. According to the results of the study, it was observed that as a result of adding the braids to the edge of the braiding machine, the unevenness of the extracted yarns was significantly lower.

IV. CONCLUSION

In conclusion, from the unevenness indicators of yarns with different fiber content, it can be seen that the unevenness of yarns is from 17.1% to 31.0%, the coefficient of variation is from 18.5% to

31.9%, -40% thinning areas are from 52.2% Up to 96.0%, +35% thickened areas were found to be reduced from 67.1% to 83.6%, hairiness from 14.6% to 27.0%, and hairiness squared from 28.1% to 40.1% .

Therefore, the thread taken from the outer part of the braiding machine served as the optimal option for obtaining thread in the subsequent processes.

REFERENCES

1. Nurboev R.Kh. Ochilov T.A. Patkhullaev S.U. Khudoyberdiev M.R. Improving the method of evaluating the quality indicators of non-woven fabrics with a new composition. Bukhara. "Sadriddin Salim Bukhari" DURDONA publishing house. 2021 S.163.
2. Nurboev R.H., Ochilov T.A., Khudoyberdiev M.R., Sharafov O.T., Usmanova Sh.A., Ismailov D.A. The effect of the mixture of fibers with different composition on the quality of yarns used for carpet pile. Bukhara Institute of Engineering and Technology. Development of Science and Technology "Journal" ISSN 2181-8193. Issue 2, 2021. pp. 220-226.
3. Nurboev R.H., Ochilov T.A., Khudoyberdiev M.R., Sharafov O.T., Abdullaev A.U., Ismailov D.A. Variation in the quality indicators of spun yarns obtained from different machines. Bukhara Institute of Engineering and Technology. Development of Science and Technology "Journal" ISSN 2181-8193. Issue 3, 2021. pp. 232-239.
4. Nurboev R.H., Ochilov T.A., Khudoyberdiev M.R., Ashurov H.T. Changes in the quality indicators of glad knitted fabrics Bukhara Institute of Engineering and Technology. Development of Science and Technology "Journal" ISSN 2181-8193. Issue 5, 2021. pp. 237-244.
5. Nurboev R.H., Ochilov T.A., Khudoyberdiev M.R., Ashurov H.T. Changes in the physical and mechanical properties of bed fabrics with different compositions. Bukhara Institute of Engineering and Technology. Development of Science and Technology "Journal" ISSN 2181-8193. Issue 5, 2021. pp. 312-316.
6. Khudoyberdiev M.R., Nurboev R.H., Ochilov T.A., Shokhimardonov O., Sharafov O. Effects of physical and mechanical properties of mixed fiber kalava yarns on the quality of the yarn. Proceedings of the republican scientific-practical conference "Innovative solutions of science-education and production in light industry" Volume 2. April 21, 2021. pp. 52-55.
7. Ochilov T.A., Mengnarov Sh.S., Khudayberdiev M.R., Sherkulov U.D. Variation of mechanical damage to machine-picked cotton fiber. Proceedings of the international scientific and practical conference "Modern innovative technologies in light industry: problems and solutions" November 19-20, 2021 pp. 354-356.
8. Khudoyberdiev M.R., Nurboev R.H., Ochilov T.A. The influence of the rewinding process on the change in the unevenness indicators of yarns. Proceedings of the international scientific and practical conference "Modern innovative technologies in light industry: problems and solutions" November 19-20, 2021. Pages 126-130.
9. Rashit Nurboev, Murkosim Khudayberdiev Anvar Abdullaev, Okhun Sharofov and Olima Aripova Improvement of product drafting process in drafting devices of the spinning machines with the application of straps APITECH III 2021 Journal of Physics: Conference Series.
10. Ochilov T.A., Khudaiberdiev M.R. Changes in the uniformity of sewing threads. International scientific and practical journal "Economics and society" №3(94) 2022.