

RESEARCH OF THE EFFECTS OF ELASTIC WAVES IN THE PRIMARY PROCESSING OF COCONS OF HERE

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Annotation. The article presents the results obtained in the laboratory of the department when testing for carrots and drying cocoons of silkworm with and without vibration.

Key words: live cocoons, silkworm, vibration, raw silk, drying cocoons.

In China, Japan, India, Vietnam and some other countries of traditional sericulture, multiple, 4-8-fold feeding of silkworms is used. In Uzbekistan and other CIS countries, only one extra feeding takes place, which impedes the development of the industry. There are many reasons for this, for example, the lack of a prepared feed base, mechanization and automation means in most technological processes, underestimation of the importance and capabilities of the industry by decision-making bodies and, as a result, workers' disinterest in the effectiveness of unattractive, mainly hard manual work, generating income of only about three months in year.

The lack of technical means when used in the main processes - in grennoe production, harvesting and distribution of feed to silkworms, feeding, on the basis of primary processing of cocoons, an imperfect technology that does not take into account the introduction of new technology and much more does not allow raising sericulture to a higher level.

Sericulture around the world to this day remains the weakly mechanized agricultural sector. The main reasons for this have always been the specifics of the industry, cheap labor in the countries of traditional sericulture and difficulties in creating technical equipment that ensure high-quality work with a living biological product.

One of the important ways to increase the importance of sericulture as an industry, the authors consider the improvement of the technology for the production of silkworms and cocoons of silkworm based on the comprehensive mechanization of the main processes in the industry.

There are also many problems in world sericulture. These are periodic ups and downs in demand for natural silk products, and also a low level of mechanization of labor-intensive processes.

The main producer of cocoon raw materials - China, does not have serious technical means used in the main technological processes. Despite this unique industriousness of the Chinese, the high-quality, strict implementation of technological requirements allows them to maintain world leadership in the production of cocoons and raw silk. The same situation with mechanization in Korea, Vietnam, India, Bulgaria, etc. This is another prerequisite for the need for widespread adoption of the equipment created by us and advanced technology, which will allow us to compete favorably with other countries.

Narrow seasonality, fragmentation, complexity of technological processes, lack of training bases for technical specialists, and more are the reasons for the low level of mechanization and automation of sericulture. For such a short (15-30 days) operation period, it is inefficient and sometimes economically disadvantageous to purchase relatively complex and expensive machines, to keep farms that carry out one feeding per year, the appropriate equipment that must be serviced by qualified specialists. The material and technical base of sericulture has not changed much over the past 40 years, and since the 90s of the last century has deteriorated even more. Therefore, an increase in the production of cocoons is not accompanied by a decrease in the cost of production and an increase in its quality, but rather, since these indicators are directly dependent on the level of mechanization of the industry [1].

At present, on the primary processing bases, live cocoons are pre-treated with hot air. The main active part of the cocono dryer is the SK-150K unit, which is used in the mode of pickling (under drying) at a temperature of 110-120 0C for 1.5-2.0 hours [2-3].

For carving and drying cocoons of silkworm using low temperature using infrared radiation and vibration is one of the most modern and more acceptable methods of drying. For carrots and drying cocoons,

vibration can be used in combination with other basic technologies in the process. Vibration affects the process as a physical factor, the action of mechanical energy from a vibration source.

Vibration, as well as sound, infra- and ultrasound, shock waves are constantly acting physical factors that accompany the evolution of life on Earth, during which special structures, mechanoreceptors, appeared and improved in a living organism.

Vibrations acting on biological objects are of a dual nature. In some cases, they stimulate life processes, and in others inhibit them. Researchers are paying special attention to studying the physiological effect of infrasonic vibrations on living organisms, which cause depression, causeless fear, panic, inadequate response to what is happening, etc. [4].

One of the possible options for creating vibrational movements for carving and drying silkworm cocoons is the development of a vibromechanism of the drying oven pallets with infrared irradiators for heating products [5-6]. The Tashkent State Technical University has developed a mechanism for generating low-frequency oscillations due to an electromechanical drive to pallets. In the laboratory of the department, a full-scale test was conducted for carrots and drying of silkworm cocoons. Experimental studies are shown in table 1 "The results of the data obtained carrots and drying cocoons of the silkworm" and in table 2 "The results of the data obtained carrots and drying cocoons of the silkworm using vibration".

Table 1
The results of the data obtained carrots and drying cocoons of silkworm

№	Starting weight, g	Weight after processing, g	Weight after 10 days, g	Processing temperature, °C	Processing time, min
1	48.5	41.2	28.5	55	20
2	49.7	41.4	28.2	60	20
3	50.2	41.2	27.9	65	20
4	50.1	42.5	29.0	70	20
5	49.5	42.0	28.7	75	20
6	49.2	40.3	26.2	80	20

Table 2
The results of the data obtained carrots and drying cocoons of silkworm using vibration

№	Starting weight, g	Weight after processing, g	Weight after 10 days, g	Processing temperature, °C	Processing time, min	Vibration frequency m/s ² (meters per second squared)
1	50.2	43.6	28.2	55	10	1
2	49.6	43.5	28.5	60	10	1
3	49.2	42.0	28.0	65	10	1
4	50.1	41.5	27.2	70	10	1
5	48.7	41.0	27.4	75	10	1
6	49.5	40.1	26.5	80	10	1

As can be seen from the tables, the carrot and the drying of the silkworm passed faster using vibration. In addition, the weight of the cocoons of the same variants processed using vibration was preserved relatively much more, and this suggests that heavier cocoons retained more moisture than the first version

processed without vibration. Such raw materials, when used further in the textile industry, will give an effective result.

Based on the results obtained, it can be stated that further improvement of the installation developed by the authors allows accelerating the process of carving and drying when using hot air at a temperature of 75 ° C with vibration combinations of 1 m / s² for 2 minutes, which makes it possible to preserve the natural physical mechanical and technological indicators of the cocoon shell.

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