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Studing The Importance Of Mulberry Leaf In The Nutritional Feeding Of Silkworm

Abdullaeva Lala Rashid
Ganja State University
lala.abdullayeva.2015@mail.ru

***Abstract*—The silkworming which has five thousand years history is one of the most profitable farms in the world.Silkworm's motherland is considered China. It has been secretly engaged for hundreds of years in China, with a wide circulation. Silkworming began engaged from the V century in Azerbaijan [1,2]. According to seasonal sources, silkworming has spread throughout the Republic in the VII century, and Azerbaijani silk has been exported to many cities around the world through the Great Silk Road for many centuries [1,9,10].**

Keywords—silk, silkworm, leaf, ingredient, quantity

In the XVIII-XIX centuries silk industry reached its highest point of development in Azerbaijan .In these years, Azerbaijan produced 9-10 thousand tons of wet cocoon products per year, silk products were mainly exported to Russia, and then to European countries. The silk product produced in Azerbaijan differs from its quality and has been highly valued in foreign markets. The Azerbaijani silkworming industry mainly for their achievements was considered the second Republic after Uzbekistan in the Soviet Union in the past. The nature, geographical position, rich and favorable soil and climatic conditions of Azerbaijan give impetus to the development of silkworm. Presently, the measures taken to develope silkworming have increased the relevance of this ancient and profitable profession. The President of the Republic of Azerbaijan, Ilham Aliyev, gave instructions to the relevant government agencies for the development of silkworm. Currently, silkworming is one of the priority areas in our republic [1,2,4,9,10].

The leaves of mulberry trees in cocoon cultivation are the only and most irreplaceable natural feed to feed silkworm. We know that silkworm is a monogam animal and when caterpillars are fed, the zugs, oils and other nutrients needed for organisms can easily be taken only from the mulberry leaves . Thus, one of the key factors that determine the quality and productivity of the mulberry leaf is perhaps the most important thing is biochemical formations in it and the form that can be mastered [3,5,6,7,8].

Our studies were conducted in the Western part of Azerbaijan. During the study, were studied the effects to the introduced silkworm productivity of the mulberry sorts of leaves. During the 3 years study, it has been established that the feeding quality of the different types of mulberry depends on the amount, shape, proportion of individual chemicals collected. This also indicates that separate silkworm genders have not paid for leaf needs in the same degree[4,5,6,7,8]. As a result, taking into account the importance of the mentioned factor in the field of cocoon, we aimed to identify learning feeding quality with biological methods directly to feed silkworm and quality with biochemical methods of mulberry leaf fragments of the Yunis-mulberry, Khanlar-mulberry, Bakhcha-mulberry and AzNIIS-7 which planted in regionalized and similar soil in Azerbaijan Republic.

It is also known that the leaf samples of each of sorts used in feeding during the feeding period were analyzed in the middle of the V age when the silkworm feed leaves more. The analysis revealed that the amount of water, total nitrogen, raw protein, hicrocytic moisture, raw ash, cellulose and non-nitrogen extracted substances from the different types of mulberry leaves investigated during the analysis was given in Table 1.

The chemical analysis carried out on the various mulberry leaves used in feeding in separate provinces has revealed that the amount of water in the leaves of different varieties is not the same. According to the 3 years results of the study, the amount of water in the AzNIIS-7, Baxcha-mulberry and Khanlar-mulberry species was 73.6%; 75.1; 75.4%, while this figure was 74.8% in the Yunis-mulberry leaf. This has also demonstrated more difficult to master by the silkworm caterpillars.

During the chemical analysis, the amount of hygroscopic moisture in the leaf differs slightly from one another. Thus, in all variants, the amount of hygroscopic moisture ranged from 9,14% to 9,56%.

According to the amount of total nitrogen, there is not a sharp distinction between the varieties of hychroscopic moisture and the varieties of different varieties of mulberry leaves used in feeding. Despite the fact that the total nitrogen content in the leaves varied from 3,35% to 3,72%. This is also an indication of the characteristic of feeding varieties.

It is also known from sources in the literature that the most important factors affecting the growth and development of silkworm and its productivity are the amount of raw protein in the leaves. This amount, in turn, varies depending on the agro-technical care given to mulberry trees, depending on the species's biological characteristics. According to the results of the 3-year research, the amount of raw protein in the Khanlar-mulberry species was more than 23,02%,

compared to other comparable varieties, while the Bakhchka-mulberry and AzNIIS mulberry varieties showed a corresponding value of 22,67-22.45 % organized. In the control variant (Yunis-mulberry species), the raw protein content was 22,91%.

The amount of raw ash content in the leaf is one of the factors that adversely affect its nutritional value and varies depending on the biological properties of the various species. The difference was 0.5%. Generally, these figures are between 10,26-10,78% for varieties.

The cellulose content in the leaf was also studied during the analysis. As can be seen from Table 3,2 the amount of cellulose significantly varies depending on the biological properties of different types of mulberry. The lowest values of cellulose content were Khanlar-mulberry (10,12%), and the highest indicator was found on AzNIIS-7 (10,69%) leaves.

Based on the results of three years of research, one of the chemicals that plays an important role in the trace of the leaves is nitrogen-free extractives. It is about half of the dry matter in the leaves.

During the analyzes it was revealed that the amount of nitrogen-free extractive substances in the leaves varies slightly depending on the type of mulberry. Thus, the number of nitrogen-free extractives in all four types of research has varied from 46,94% to 47,04%.

When analyzing the biochemical composition of the different types of mulberry leaves used in the experimental feeds, it has been established that different types of mulberry leaves are different from each other for the chemical composition of the same agrotechnical care. This has also shown its different effects to the growth, development, and productivity of silkworm. Thus, the results of the three years research carried out by us once again suggest that it is possible to significantly increase the productivity due to the proper selection of the appropriate leaves of mulberry sorts, which can be considered as suitable for each type of fodder.

As a result, it should be noted that, when evaluating the needs of the Yunis-mulberry, AzNIIS-7, Bakhcha-mulberry and Khanlar-mulberry species, it is more acceptable to evaluate them on the basis of the biological method, that is, the results of the experimental trial feeds.Therefore, the quality of the Khanlar-mulberry species of leaves examined by us has been proven on the basis of experimental experiments or biochemical analyzes.

Table 1 Biochemical composition of the sorts of various mulberry leaves used in the feeding in the study(%)

№	Sort name	The amount of water in the leaf	Hicroscopic moisture	General nitrogen	Raw protein	Raw ash	Cellulose	Nitrogen-free extractive substances
1	2	3	4	5	6	7	8	9
1	Yunis-mulberry(control)	74,8±2,05	9,41±0,18	3,66±0,07	22,91±0,7	10,51±0,8	10,51±0,7	46,94±1,1
2	AzNIIS-7	73,6±2,00	9,14±0,25	3,72±0,05	22,45±0,9	10,78±0,2	10,69±0,5	46,49±1,9
3	Bakhcha-mulberry	75,1±2,08	9,42±0,26	3,63±0,04	22,67±0,1	10,43±0,9	10,45±0,1	47,03±1,7
4	Khanlarmulberry	75,4±2,09	9,56±0,29	3,35±0,06	23,02±0,5	10,26±0,3	10,12±0,0	47,04±1,7

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