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IN CULTIVATION MULBERRY SEEDLINGS SCIENTIFIC WITH NEW METHODS

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Abstract
The article discusses the issue of increasing the forage base of the silkworm using modern methods, which is currently a serious problem in the sericulture industry.

Keywords: Mulberry, variety, seedling, seeds, biohumus, vermiculite, perlite, sand, acclimatization.

Introduction

Uzbekistan is also considered one of the world's largest sericulture countries, and today much attention is paid to the productive and efficient use of land, as well as obtaining high yields of leaves and improving the quality of existing and newly created fodder mulberry plantations. According to the Uzbekipaksanoati Association, intensive mulberry plantations cover more than 1.5 thousand hectares. Of these, about 70 hectares of intensive mulberry plantations were laid in 2024. For tall mulberry plantations, mulberry plantations planted in an intensive form are put into operation earlier, and their leaf use allows obtaining a leaf crop in a short time. To obtain a large and high-quality leaf crop from mulberry plantations, the creation of intensive mulberry plantations according to the most effective and disease-resistant schemes suitable for feeding worms in different seasons is considered an urgent problem in our country and the world.

By the end of the 19th and the beginning of the 20th century, the method of propagating difficult-to-grow plants from tissues, cells, and isolated protoplasts began to develop rapidly. In particular, such methods began to be analyzed in various ways by scientists around the world.

Foreign scientists who conducted plant research, such as Fochting, Rechinger and Haberlandt, conducted scientific research on growing fragments of tissue isolated from plants in a sucrose solution of plant cells in the late twentieth century and early new century. Although they failed to produce viable plants from tissue in vitro in their scientific research , they proposed a number of hypotheses that guided the development and application of this method by researchers, and many ideas were put forward.

Research by the French scientist G. Morel, the founder of microclonal plants capable of forming callus tissue, established that when vitamins were added to the prepared nutrient medium -

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glutamine, cysteine and kinetin - the apical meristems of some plants developed well in a special nutrient medium enriched with them.

In experiments, miniature (small, tiny) shoots showed significant growth when gibberellic acid was added. This is a shame .

These observations served as the basis for the microclonal method of plant propagation. Modern microclonal methods of plant propagation are currently one of the most pressing problems in the physiology and agricultural technology of complex plants that are difficult to propagate. Since then, scientists around the world have begun to conduct numerous scientific studies in this area.

In Russia, scientific research on microclonal propagation of plants began in the 1960s at the Timiryazev Institute of Plant Physiology, in the laboratory of plant tissue culture and morphogenesis under the direction of R.G. Butenko. Microclonal propagation was studied mainly on potatoes, sugar beets, raspberries, carnations and other plants.

In the new century of accelerated development, the use of tissue culture microcloning technology (growth points) for rapid microclonal propagation is limited mainly to fruit and some berry-fruit plants that have high economic productivity.

According to G. Morel Micropropagation of new varieties or economically important crops from virus-free tissue and organ cultures (growth points) This is one of the main areas of use and the existing varieties are considered fast. It was explained that traditional methods take many years to complete the process.

In the current century, it has become possible to obtain many genetically modified regenerated plants without the use of special mutagenic agents. Cell selection shows that the result of the widespread use of mutagens, as a rule, is an increase in the number of mutations.

Its popularity as a method of hybridizing somatic cells by adding protoplasts to the nutrient medium is primarily due to its ability to eliminate incompatibility between species during outcrossing.

In recent years, a large number of wild species systems considered valuable genetic material and the possibilities of using these systems have emerged. Growing and maintaining mainly cultivated plants, as well as source materials, requires a lot of time and space for breeder-researchers.

Microclonal, i.e. **in vitro,** propagation of mulberry varieties is cost-effective, but the ability to store disease-free eukaryotic material for long periods at temperatures slightly above 0° C is also of great importance. The lower the room temperature at which the cultures are stored, the slower they grow at low temperatures, which can increase the interval between their transplantation from 6 months to several years.

Another more effective method of preserving plants is based on cryogenic preservation, according to which plants grown in vitro are frozen in liquid nitrogen for a long time and can be stored indefinitely. Scientists conducting scientific research have successfully used the apical buds of some plant species to obtain the source material for plant propagation after freezing and thawing the plants in liquid nitrogen using certain methods.

In recent years, the method of microclonal propagation of plants has become widespread in agricultural production. Reproduction of grape seedlings **in vitro** successes are achieved in his scientific work on reproduction using this method, as well as in the results of scientific work carried out by many other scientists.

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The practical use of these methods by researchers can be divided into three main areas:

1) The first method is genetic selection work, which requires subsequent replenishment of the bud culture with isolated microspores and pollinators, seed buds and nodules, cell selection and manipulation of isolated protoplasts;

2) Intensive microclonal in vitro (growth point) propagation of plants High economic efficiency of growing mulberry, ornamental, vegetable and berry crops using this crop;

3) Obtaining planting material free from various viruses, infections and mycoplasmas **.**

The so-called general asexual reproduction of plants selected for reproduction, microclonal plants in tissue and cell culture, has a number of advantages over the traditional vegetative method. High coefficient, the ability to obtain the necessary material for planting in a short time, acceleration of the selection processes, removal of viruses and pathogenic microorganisms, homogeneity of the propagated plants with the mother plant, saving greenhouse areas during the adaptation of the initially obtained plants, the ability to grow plants continuously throughout the year, and most importantly, the ability to propagate rare plants that are difficult to propagate by conventional in vitro methods, practically in the required quantities using the microclonal method.

In vitro micropropagation of healthy tissues and some organs isolated from plants When using the method of microclonal propagation of plants, as well as other vegetative methods, one can observe the formation of **totipotency** - that is, the uniformity of the selected plant organism. Somatic cells of the plant selected for propagation fully realize the ability to self-development, that is, **they realize** the property of the nucleus. The fact that the nucleus of the somatic cell contains the entire potential of the zygote, that is, all genetic information, is the omnipotence of the nucleus.

It can be assumed that the simpler and more simply oriented the chemical structure of the plant cell being studied, the easier it will be to delaminate.

As mentioned above, the main methods of propagation of mulberry are sexual, that is, by harvesting and planting seeds. Since such varieties of mulberry as Balkhi mulberry, Bedon mulberry, Marvarida mulberry, Shotut and others, which are mainly cultivated for their fruits, do not have the ability to reproduce by seeds, then indigenous peoples have been propagating them vegetatively (mainly by grafting) for many years. Although our ancestors have practically used vegetative propagation of mulberry for many years, the level of its fertility was scientifically and theoretically established only in the past 20th century. Since welding and dust affect the welding mark and vice versa, the welding mark affects the welding dust, as a result of which one of them partially changes the other. Such a change takes a long time.

The vegetative method also has its drawbacks. For example, if the mother plant is sick or weakened by pests, then young trees propagated vegetatively from such plants may become sick and damage other plants. Therefore, for vegetative propagation, it is necessary to choose healthy, strong and high-quality mulberry plants.

So, we have considered the advantages and disadvantages of propagating mulberry by seeds and vegetatively. In this regard, the question arises as to which method should be used for mulberry. Usually, when growing mulberry, both methods have to be used. When growing many mulberry seedlings and saplings, propagation is mainly carried out by seeds, and when turning low-yielding mulberries into high-yielding ones, the vegetative method is used.

Scientists from foreign countries, as well as from the cocoon-growing regions of the

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Commonwealth of Independent States, have conducted a number of scientific studies on mulberry grafting. This method is based on the fact that scientists have obtained results indicating the absence of viruses in the meristem cells.

With rapid deforestation and loss of genetic resources, several valuable natural plants have been seriously affected. Jer Chia Chan expressed his opinion on the successful use and production of microclonal, i.e. **in vitro** , tree and plant breeding technology in restoring new forests and plant life.

Isolated meristem cells have the advantage of preserving the genetic characteristics and identity of the progeny based on clonal microstructure.

Conclusion

Currently, all over the world, mother nurseries are created from plants propagated **in vitro** . Despite the high cost of seedlings, the high quality of mother nurseries fully justifies their use economically. Mother nurseries created from **in vitro plants** allow to obtain twice as many seedlings, and their quality is characterized by freedom from diseases, a shorter fruiting period and higher yields compared to seedlings propagated in a traditional way. It is also important that this trend has continued in recent years .

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