

**OPTIMIZATION OF CONDITIONS FOR MICROCLONAL GROWTH OF CHERRY  
PLANTS**

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**Annotation:** The thesis highlights the scientific and practical significance of the process of microclonal cultivation of cherry (*Prunus avium* L.) plants. As a result of optimizing the composition of the nutrient medium, the ratio of hormones, and the light-temperature regime, the possibility of obtaining high-quality seedlings with preserved genetic properties in a short time was noted.

**Keywords:** cherry, microclonal cultivation, in vitro, nutrient medium, hormones, regeneration.

**Introduction.**

In recent years, the demand for the cultivation of high-yielding varieties of fruit trees and the production of high-quality planting material in agricultural production has significantly increased. Traditional propagation methods - seed propagation or grafting - produce seedlings that require time and are often vulnerable to pests and diseases. Therefore, modern biotechnological approaches, in particular, the method of microclonal propagation, allow obtaining high-quality and healthy seedlings in a short time.

Cherry (*Prunus avium* L.) It is a valuable fruit tree widely cultivated in many regions of Uzbekistan. Due to the high taste of the fruit, its richness in biologically active substances, as well as its economic value, the demand for cherries is growing year by year. However, cherry propagation by traditional methods is difficult, vegetative propagation leads to low rooting of seedlings and a predisposition to viral and fungal diseases.

Microclonal cultivation technology allows obtaining healthy and strong seedlings with many identical genotypes from small tissue fragments under sterile conditions. With the help of this method, it is possible not only to increase the efficiency of propagation, but also to create large-scale plantations while preserving the valuable biological properties of varieties.

**Main Part.**

**Explant Selection** - apical and lateral buds are obtained under sterile conditions.

**Nutrition medium** - Murashige and Skoog (MS) medium, in which mineral substances, vitamins, and organic supplements are introduced.

**Hormone balance** - cytokines (BAP, kinetin) stimulate bud formation, while auxins (IAA, NAA) stimulate rooting. Determining their optimal ratio increases efficiency.

**Light and temperature** - 16/8 hours of lighting mode and high growth at 24-26 °C.

**Sterility** - Use of sodium hypochlorite and alcohol solutions reduces contamination.

### **Result and discussion.**

During the experiment, the growth and development of tissues obtained from cherry plant explants under in vitro conditions were observed. The obtained results showed that the composition of the growing medium, light regime, and temperature indicators significantly influence the process of callus formation and seedling transformation of cherry explants.

Under optimal conditions, the growth rate of explants was high, and the rooting of seedlings improved significantly. This confirms that the technology of microclonal propagation allows obtaining quick, healthy varieties of cherries in the form of seedlings with identical genetic characteristics.

During the discussion, it was noted that the microclonal method, compared to traditional propagation methods, saves time, increases the resistance of seedlings to diseases, and plays an important role in creating high-yielding plantations. Also, no significant changes were observed in the phenotypic characteristics of the obtained seedlings, which indicates the genetic stability of the method.

### **Conclusion.**

As a result of the conducted research, it was established that the composition of the growing medium, light, and temperature regime are important in the process of microclonal propagation of cherry plants. Under optimal conditions, rapid and high-quality seedlings grew from explants, the degree of rooting was high, and the plant's resistance to diseases increased.

It has been proven that by the method of microclonal propagation, it is possible to obtain many healthy cherry seedlings with identical genetic characteristics in a short period of time. This increases efficiency compared to traditional methods, saves time, and allows for the creation of high-yielding plantations.

This research shows that the technology of microclonal cherry cultivation plays an important role in the system of selection, intensive horticulture, and seedling cultivation. In the future, by applying this method to other fruit trees, it will be possible to preserve and propagate the genetic characteristics of many valuable varieties.

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