Micro clonal Reproduction of Ornamental Plants

Akbarova Muhayyo Xusanovna Fergana State University

Xomidova Marxaboxon Murodjon qizi Fergana State University

ABSTRACT

This article covers information on obtaining large quantities, high-quality, genetically identical, virus-free planting material using microglonal reproduction of orchid varieties from ornamental plants.

Keywords: clonal microcontroller, callus, tissue culture, regenerative plant, in vitro, apical meristema, explant, adventitious Bud.

On the basis of achievements in the field of cell and tissue culture, a new method of vegetative reproduction of plants was created - (clone microcontroller). The range of use of microcontrollers is very wide, increasing even more day by day. Nowadays, abundant and faster delivery of fertile, disease and pests, drought, growing plants on different soils is one of the pressing problems. The latest achievements of modern biotechnology are aimed at creating high-yielding, good product quality, disease and pest-resistant varieties of agricultural crops. Above all, it has a great effect in in vitro conditions when it is used to breed woody species of plants, especially inhibitors and plants that are missing this method, as well as medicinal plants. The first success in cloning plants is associated with obtaining a regenerative plant by cultivating the apical meristema of herbaceous plants in a nutrient medium suitable for it.

The clonal microcontroller process can be divided into 4 stages:

choosing a donor plant, separating the exhibits and getting a sterile culture that grows well;

microcontroller itself, in which it is achieved to obtain the maximum (maximum) amount of meriklones;

to take root the propagated branch and adapt them to soil conditions, regenerant when necessary-to store plants in cold temperatures (+20,+100;

growing a plant in greenhouse conditions and preparing them for planting or sale by taking them out into the field.

Many methods of clonal microcirculation are known. Many authors, going to study the influence of conditions on the cultivation of explants on the process of morphogenesis, observed that there would be a different mofogenetic reaction to changes in cultivation conditions, which led to the creation of a new classification of clonal microcontroller techniques. As is known from the scientific literature, based on the methods of micro-breeding plants, this process can be carried out in the following ways:

accelerate the development of meristems that are present in the plant (stem Apex, stem buds);

induction of the formation of direct adventitious buds in the tissues of the explants;
induction of somatic embryogenesis;
primary and seedling retrieval of adventitious buds in callous tissues
stratification.

The main method used in clonal microcracking of plants is to activate the development of the meristems that plants have, which is based on the removal of apical excitability. This can be achieved in two ways:

removing the stem from the top meristema and then microflammating the stem in an environment where it does not store hormones in vitro conditions;
adding substances that have a cytokine effect to the nutrient medium (enhancing the growth of the rod).

As a rule, cytokine–6-benzylaminopurine (BAP), 6-furfurilaminopurine, as well as 2-isopentenyladenine (2ip) and zeatin are used. The varieties obtained in such a way are separated from the primary mother's export and re -
grown in a freshly prepared nutrient medium. Currently, this method is widely used in the preparation of agricultural plants for virus-free planting materials. In this way, the preparation of healthy seedlings of sugar beets, tobacco, Khmel, topinambur, tomatoes, potatoes, cucumbers, peppers, pumpkins and other plants is established.

The second method was used in research experiments. It is a method of strengthening (inducing) the appearance of adventitious shoots directly in the tissues of the explant, based on the fact that the separated part of the plant forms the part (organs) that is not lacking in a favorable nutrient environment. The organ and tissue that wanted the plant to form an adventitious Bud (separated bud, leaf, stem, seedpalla, part of the root and x.k) can be organized on the basis. However, the material must not be poisoned. This process is usually carried out in a nutrient medium in which a separate cytokine or a mixture of it with auxin (10:1 or 100:1) is stored. More β-indolyl–3-acetic acid (IUK) or ∝-naphthyl acetic acid (NUK) is used as auxin. This is the most common method of microcontrolling, with this method the root fruit flowers (Narcissus, Lilia, giasint, gladiolus, tulip); plants belonging to the Brassica generation (colored cabbage) as well as onions, garlic, tomatoes and a number of other plants are fostered.

In the conditions of in vitro, it was found that when introducing Bud cuttings of ornamental plant orchid varieties into the culture, the sterilization process greatly affects its effectiveness. In this case, after 40 minutes of sterilization in a 10% solution of NaClO, it was washed 3 times with distilled water for 5 minutes, shaken in a 10% solution of H2O2 for 1 hour and with distilled water for 2 hours at a speed of 150 revolutions. In doing so, all the explants were introduced into the culture sterile without mold in the growing feed environment. Young and not infected with the virus, put to the experiment, isolated a healthy orchid plant with a high meristem and grown it in a nutrient medium, where Muraga and Scugani stored modified 0.1-0.5 mg/l 6-benzylaminopurine (BAP). It was observed that sterile explants included in the culture retain their survival at 4 different concentrations of 6-BAP (benzyl adenine purine). In the MS feed environment, the formation of budding joints by growing the explants of orchid varieties, the addition of the orchid varieties introduced into invitro conditions and microclonally increased auxin (IMG)Li in the MS feed environment, the root formation at 3 different concentrations of IMG, and the number of Roots was observed.

After 4 weeks, the meristema turned into a grass, and adventitious shoots began to form on its basis, developing rapidly and laying a new bud. For 5 Weeks, an irregular collection of buds was formed. These shoots are at different stages of development and are connected to each other by connecting weaves. Leaves appeared from short cuttings, at the base of which new adventitious shoots began to emerge. It was planted in a new nutrient medium, separating these shoots. In the environment in which cytokine was stored, the proliferation of branches continued, while in the environment in which the hormone was not stored, a normal, Root and deciduous plant was formed for 6 weeks.

The application of in vitro technologies helps to create, maintain and expand living collections of plants, making it possible to protect the gene pool of plants on the verge of rarity and extinction. This method differs from other methods in that it has a number of advantages. First of all, it is effective and cost-effective, since in the process of reproduction, in favorable conditions of culture from each callus cell, tasofidium shoots can form, which form a plant. Secondly, in some cases it is the only way to reproduce plants from the culture of tissues. Thirdly, plants obtained through this method are of interest to breeders due to their genetic and morphophysiological differences. This gives breeders the opportunity to choose characteristic plants for which the importance of enema is important, and evaluate their growth in field conditions.

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