RESEARCH ON METHODS FOR INTRODUCING WHITE SEED (*SILYBUM MARIANUM*) IN VITRO CULTURE

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Abstract: After gaining independence, the Republic of Uzbekistan, along with reforming all sectors, paid great attention to the development of the pharmaceutical industry. Today, the pharmaceutical industry is one of the fastest growing sectors in our country. It is aimed at finding new bioactive substances, creating medicines from them, and applying them in medical practice to meet the needs of our country's population in medicines.

Research objective: Introduction of the milk thistle plant, *Silybum marianum* , into in vitro culture and development of optimal conditions for microclonal propagation of the plant.

Methods and techniques: Sterile seedlings are used to obtain explants for callus and tumor cultures, microclonal propagation, and the study of hormonal regulation. Seeds are sown either in water or in a nutrient medium for germination. Before sterilization, plant objects are thoroughly washed with running water, sometimes with detergents, and cleaned of excess tissue. The skin is removed from tubers and roots, and the shoots and buds are removed from the plants. Plant explants are sterilized with solutions of active chlorine (chloramine, hypochlorite Na), bromine (bromine water), tween-20, hydrogen peroxide, alcohol, silver nitrate, diacid, and antibiotics. It is necessary to choose a concentration of sterilizing agents that will only harm the seeds themselves, do not inhibit their growth, and ensure maximum sterility. Ethyl alcohol is often used to pre-sterilize the material by wiping the surface or immersing it in absolute alcohol for a few seconds. Sometimes such sterilization is sufficient, it is used when working with fruits, seeds, buds, nodes. Calcium hypochloride (bleach) is used in the form of a 5-7% solution to sterilize buds, buds, flowers, seeds, buds for 5-8 minutes. Sodium hypochlorite is used as a 0.5-5% solution to process any explants for 1-20 minutes. This substance is toxic to cells, therefore the sterilization time and concentration are selected experimentally.

Results: White carrion plants rooted in the laboratory were successfully transplanted into sandy peat substrate (90-98% of plants continued to grow). White carrion plants transplanted into natural conditions grew rapidly, forming a well-developed root system, many lateral shoots and healthy leaves within a month.

Conclusions: The initial experiments on microcopying the white carrak plant consisted of the following: first, the plant seeds were grown in a nutrient medium, then explants were taken from the sprouted seedlings and grown in nutrient media of different concentrations. Then, with the help of phytohormones and vitamins, their leaf, shoot and root growth were carried out, and the best growth conditions were compared. Finally, the plants that grew well and had a strong root system were adapted to the external environment. Nodular explants grow faster than leaf explants because they develop shoots more quickly. When certain hormone balances are maintained in VarIII medium, the explants develop many shoots and roots simultaneously. Peroxidase activity and auxin content change during the rooting process. Polyamines can be used as indicators to help determine the rooting process more quickly.

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