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WAYS OF REPRODUCTION OF THE PLANT *PETUNIA* IN CONDITIONS OF *IN VITRO*

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From the very beginning of human life, plants have attracted interest in researching their own beauty. On the vast territory you can see the world of unique flora, which is striking, which is amazing. Many plants use products for food, industrial, various medical products, as well as decorative. *Petunia hybrida* is an decorations plant grown in many countries, for the first time in India. As the object of this study, using the *In vitro* method, petunia plants were selected for specific nutrient media with macro and micro salt. Optimized breeding methods were mastered by *in vitro* cultivation.

According to the study, the cultivation of *Petunia hybrida in vitro* is the growth of cells, tissues of living organisms in a harmless glass environment. To *grow Petunia hybrida in vitro*, you need to pre-disinfect the explant, the nutrient medium and the necessary equipment. Extraction of the explant and its nutrient medium was carried out in a laminar box. *Petunia hybrida in vitro* was accelerated by the following two methods: "Growing methods" or the best way to grow seeds. As a nutrient medium, mineral salts, carbohydrates, vitamins, phyto chormas, and amino acids are added to it. Cell divisions require phytohormones auxin and cytokines. If we use a solid medium, we all know that it will use agar-agar to freeze it. The plant *Petunia hybrid* can be grown in various nutrient media because it is resistant to heat and cold.

Petunia hybrid - the plant has a positive effect on the condition of love, warmth and comfort, forgetting soft, pleasant aroma, calming, depression and stress. It has been reported that the work of the cardiovascular and respiratory, immune, central nervous and digestive systems will improve significantly.

The conclusion, today biotechnological methods are widely used to accelerate plant growth, including the rapid growth of plant regenerates by cultivating granules in vitro. *In vitro* reproduction of *Petunia* is more effective than normal vegetative reproduction. Thanks to reproduction *in vitro*, it became possible to obtain the genetic origin of plant material in the shortest possible time. As a result, *Petunia hybrida* is cultivated in vitro and can be used to improve the quality of a petunia plant in the city.

Scientific adviser: Candidate of Biological Sciences., associate professor Yernazarova G.I., Candidate of Biological Sciences., associate professor R. Jeksembiev

A NEXT-GENERATION APPROACH FOR ASSESSMENT OF ECOLOGICAL STATE OF AQUATIC SYSTEMS BASED ON MICROALGAE

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Microalgae are large and diverse group of unicellular photosynthetic microorganisms that, being most abundant and efficient unicellular producer of a rich and complex biomass in all aquatic systems, have gained global importance in recent years. More recently, much attention has been given to use of algal flora biodiversity as bioindicators to manage an aquatic ecosystem according to the habitat requirements. Despite their importance, much of the information on clear description, characterization of microalgal communities and strains designation is somewhat inaccessible. The lack of basic information on microalgal species diversity at different taxonomic levels has significant implications for many aspects of ecosystem monitoring, conservation biology, and evolutionary biology.

Gene-based biodiversity discovery has become an important application for biomonitoring diagnostic development and majority of the biodiversity studies have used this approach to not only increases the efficiency of biomonitoring, but also to expands the scope of biomonitoring programs, by extension into habitats and biota groups which are currently not studied due to poor taxonomic knowledge or technical competency. The DNA-based approach for the comprehensive assessment of microalgal communities at genus-, species- and strain-level utilizes various sequencing technologies to identify species provided as individual specimens or in environmental samples such as water, sediment or soil.

Metagenomics is increasingly being considered as promising technique, revealing the entire gene repertoire of the community recovered directly from environmental samples. Marker gene metagenomics is a fast and viable method to obtain a taxonomic distribution profile or fingerprint using PCR amplification and sequencing of evolutionarily conserved and variable marker genes, such as the 18S rRNA gene or 18S rDNA. Amplicon-based metagenome analysis using multiple primers approach can provide novel insight into the biological questions and molecular novelties with a special focus on bioindication, phylogenetics and taxonomy, to cast the widest possible taxonomic net for microalgae and yet reduce sequencing of non-microalgal eukaryotes. While it may be possible to align DNA- based observations with traditional taxonomic observations, the metagenomic methods have to be further validated and reference genome libraries ideally need to be completed to complement biomonitoring programs on a large scale.

Scientific advisor: Prof. Zayadan B.K.

A COMPARATIVE STUDY OF THE MICROFLORA OF SHUBAT FROM THE SOUTHERN AND WESTERN REGIONS OF THE KAZAKHSTAN

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Dairy products are an integral group of dairy products in the diet of each person. They have good absorption in the body, dietary features In addition, they contain a large number of macro-and micronutrients, vitamins.

There are two groups of fermented dairy products: products of lactic fermentation (cottage cheese, sour cream, sour milk, acidophilus, yogurt) and products of mixed fermentation - lactic acid and alcohol (kefir, acidophilus-yeast milk, koumiss, kurunga, shubat). Representatives of the first group are characterized by a sour-milk taste and rather dense and homogeneous, without a gas bubble clot. The products of the second group also have a sour-milk taste, but more acute due to the content of a small amount of alcohol and carbon dioxide, have a refreshing effect, and their clot is permeated with small gas bubbles.

Shubat is still a poorly studied object in terms of technological and microbiological research, which hinders its industrial production. Therefore, the isolation and production of pure yeast cultures, the determination of their morpho-physiological features and metabolic potential occupy an important place. Therefore, the purpose of this study was to isolate new strains of lactic acid microorganisms from shubat samples, to study and use them as starter cultures in the preparation of starters for national cultured milk products.

Ten samples of shubat from Atyrau, Almaty and Dzhambul regions, as well as the cities of Kyzyl-Orda and Shymkent were used.

A microrganisms were isolated through microbiological methods, like serial dilutions, streak plate method and pours plate method using Saburo and MRS medium.

Twenty isolates of yeast and bacteria were isolated from samples of shubat of the Almaty region, 14 isolates from shubat samples of the Atyrau region, 10 isolates from shubat of the Zhambyl region, 16 isolates from shubat samples of the Kyzyl-Orda and Shymkent cities.

The yeast complex of the Dzhambul region shubat was distinguished by a significant dominance of the yeast of the genus *Saccharomyces* (75%), while in the shubat of Kyzyl-Orda region their share was only 40%.

A comparative study of the lactic microflora of shubat in the Atyrau (western) and Almaty (southern) regions revealed their differences in species composition. In addition to the yeasts of the genera *Trichosporon, Kluyveromyces*, lactic acid bacteria of the genera *Lactococcus lactis* strain and *Lactobacillus bulgaricus* strain were found in the microflora of shubat of the Atyrau region. Yeast strains belonging to the genus *Saccharomyces* and *Candida* were isolated from samples of shubat in the Zhambyl region. In the sample of shubat of the Kyzyl-Orda in the south-west of Kazakhstan, most of the yeast belongs to the genera *Saccharomyces* and *Kluyveromyces.*

Scientific advisor: Omirbekova A.A., PhD, acting as Associated Professor