MIRZO ULUG‘BEK NOMIDAGI
O‘ZBEKISTON MILLIY UNIVERSITETI
JIZZAX FILIALI



"BIOTEXNOLOGIYANING RIVOJLANISH ISTIQBOLLARI VA MUAMMOLARI"

MAVZUSIDAGI RESPUBLIKA MIQYOSIDAGI ILMIY-TEXNIK ANJUMAN TO‘PLAMI





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МИНИСТЕРСТВО ВЫСШЕГО ОБРАЗОВАНИЯ, НАУКИ И ИННОВАЦИЙ РЕСПУБЛИКИ УЗБЕКИСТАН

ДЖИЗАКСКИЙ ФИЛИАЛ НАЦИОНАЛЬНОГО УНИВЕРСИТЕТА УЗБЕКИСТАНА ИМЕНИ МИРЗО УЛУГБЕКА

СБОРНИК ТЕЗИСОВ РЕСПУБЛИКАНСКОЙ НАУЧНОЙ КОНФЕРЕНЦИИ

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IMPORTANCE OF SELECTION OF LOCAL *JUGLANS REGIA* L. GENOTYPES RESISTANT TO CROWN GALL

Eshbekova G.G.
Molecular Biotechnology Lab, Department of Genetics and Biotechnology, Samarkand State University named after Sharof Rashidov
guljakhonbio@samdu.uz

Abstract. The selection of local *Juglans regia* L. genotypes resistant to crown gall is crucial for enhancing walnut cultivation, particularly in regions where this disease significantly impacts productivity. Crown gall, caused by *Agrobacterium tumefaciens*, leads to economic losses due to reduced yields and increased susceptibility to other pathogens. Therefore, identifying and breeding resistant genotypes can mitigate these challenges.

Keywords: *Juglans regia* L., local genotypes, crown gall, *Agrobacterium tumefaciens.*

Walnuts are an important crop in Uzbekistan, providing a significant source of income and nutrition for local communities. Crown gall disease is a significant threat to walnut trees, causing damage to the graft union and reducing tree productivity. By selecting resistant genotypes, farmers can reduce the risk of disease and maintain healthy and productive orchards [1]. Uzbekistan has a wide range of walnut genetic resources, which can be leveraged to develop new, disease-resistant varieties. This approach ensures the long-term sustainability of walnut cultivation and supports the development of local industries [2]. Local genotypes are better adapted to the specific environmental conditions of Uzbekistan, including extreme temperatures, soil droughts, and pest pressures. This adaptation enhances the overall resilience of walnut trees and reduces the need for external inputs [3]. By selecting and cultivating disease-resistant local genotypes, Uzbekistan can improve the economic viability of its walnut industry. This can lead to increased production, better yields, and higher profits for farmers, ultimately contributing to the country's economic growth [4].

The following methods are the most effective methods for selecting crown gall resistant genotypes:

-Evaluate local walnut varieties and selections for resistance to crown gall disease caused by the *Agrobacterium tumefaciens.* Look for genotypes that show reduced gall formation and growth when challenged with the pathogen [5].

- Conduct in vitro co-transformation experiments to stack crown gall resistance genes (such as iaaM and ipt) along with nematode resistance genes (such

as Pv010) into local walnut genotypes. This can produce rootstocks with combined resistance to both crown gall and nematodes [6].

-Assess the genetic diversity of local walnut populations in Uzbekistan and select genotypes with desirable traits like late leafing, lateral bearing, disease resistance, and tolerance to abiotic stresses like frost and drought [7].

- Establish walnut breeding programs to develop new cultivars by crossing elite local genotypes with improved traits, including crown gall resistance, high yield, and nut quality [8].

- Maintain and evaluate the genetic resources of local walnut species and forms conserved at the National Center for Genetic Resources (NCGR) in Uzbekistan. Identify sources of crown gall resistance for use in breeding programs.

In conclusion, selecting crown gall-resistant *Juglans regia L*. genotypes is essential for improving the sustainability and productivity of walnut cultivation in Uzbekistan. Utilizing local genotypes adapted to the country's specific environmental conditions enhances resilience against diseases and stresses. Advanced biotechnological methods and genetic diversity assessments will bolster breeding programs, leading to robust, high-yielding walnut varieties. This approach promises increased profitability for farmers and supports the long-term economic growth of Uzbekistan's walnut industry.

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ОПТИМИЗАЦИЯ УСЛОВИЙ КУЛЬТИВИРОВАНИЯ МОЛОЧНОКИСЛЫХ БАКТЕРИЙ: ВЛИЯНИЕ ПИТАТЕЛЬНЫХ СРЕД И ПОЛИФОСФАТОВ НА КУЛЬТУРАЛЬНУЮ АКТИВНОСТЬ

Саидова Д.Э.
Институт микробиология АН РУз
E-mail: dilfuza_saidova92@mail.ru

Аннотация: В данной работе изучено влияние различных параметров культивирования на культуральную активность молочнокислых бактерий (МКБ). Основное внимание уделено разработке оптимальных питательных сред с добавлением полифосфатов и их воздействию на рост и метаболическую активность исследуемых штаммов. Проведены эксперименты по культивированию штаммов на модифицированных средах и элективной среде MRS-бульон с добавлением полифосфатов в разных концентрациях. В рамках исследования были оптимизированы ключевые параметры культивирования, включая температуру, pH среды, концентрацию питательных веществ и время ферментации. Результаты показали, что добавление полифосфатов в концентрации 0,1–0,2% значительно улучшает культуральную активность и увеличивает конечную биомассу штаммов. Оптимальные условия культивирования позволили повысить скорость роста и продукцию молочной кислоты по сравнению со стандартной средой. Представленные данные открывают новые перспективы для промышленного использования молочнокислых бактерий в производстве заквасок и пробиотических продуктов [1]. В дальнейшем планируется расширить исследования с целью изучения влияния дополнительных компонентов среды на рост и функциональные свойства молочнокислых бактерий. Особое