



NATSCIENCES.UZ

# TABIY VA AMALIY FANLARNING DOLZARB MASALALARI

JOURNAL OF NATURAL AND APPLIED SCIENCES

2025

1-JILD | 2-SON

**NATSCIENCES.UZ**

*№ 2 (1)-2025*

**TABIY VA AMALIY FANLARNING  
DOLZARB MASALALARI**

**TOPICAL ISSUES OF NATURAL  
AND APPLIED SCIENCES**

**АКТУАЛЬНЫЕ ВОПРОСЫ ЕСТЕСТВЕННЫХ  
И ПРИКЛАДНЫХ НАУК**

**TOSHKENT-2025**

**BOSH MUHARRIR:**

Karimov Ulug‘bek Orifovich

**TAHRIR HAY‘ATI:***01.00.00 – FIZIKA-MATEMATIKA FANLARI***Zaitov Adilbek Ataxanovich**

Fizika-matematika fanlari doktori (DSc). Professor. O‘zbekiston.

E-mail: [adilbek\\_zaitov@mail.ru](mailto:adilbek_zaitov@mail.ru)

ORCID: <https://orcid.org/0000-0002-2248-0442>

*04.00.00 – GEOLOGIYA-MINERALOGIYA FANLARI***Kosbergenov Kuvatbay Maulenbergen ugli**

Geologiya-mineralogiya fanlari bo‘yicha falsafa doktori (PhD).

Katta ilmiy xodim. O‘zbekiston.

E-mail: [qosbergenov93@mail.ru](mailto:qosbergenov93@mail.ru)

*05.00.00 – TEXNIKA FANLARI***Karimov Akmal Akbarovich**

Texnika fanlari bo‘yicha falsafa doktori

(PhD). Dotsent. O‘zbekiston.

E-mail: [karimovakmalakbarovich@gmail.com](mailto:karimovakmalakbarovich@gmail.com)

ORCID: <https://orcid.org/0000-0003-1473-6222>

**Mahmudov G‘iyosjon Baqoyevich**

Texnika fanlari bo‘yicha falsafa doktori (PhD). V.b. Dotsent. O‘zbekiston.

E-mail: [mahmudov.giyos@mail.ru](mailto:mahmudov.giyos@mail.ru)

ORCID: <https://orcid.org/0000-0002-0915-9929>

**Urishev Omadjon Musurmonqul o‘g‘li**

Texnika fanlari bo‘yicha falsafa doktori (PhD). Dotsent. O‘zbekiston.

E-mail: [orishevomadjon@gmail.com](mailto:orishevomadjon@gmail.com)

ORCID: <https://orcid.org/0009-0005-5728-554X>

---

**TABIY VA AMALIY FANLARNING**

**DOLZARB MASALALARI** elektron jurnali

2025-yil 7-iyul kuni 876362-sonli  
guvohnoma bilan davlat ro‘yxatidan  
o‘tkazilgan.

**Muassis:** “SCIENCEPROBLEMS TEAM”

mas‘uliyati cheklangan jamiyati.

**TAHRIRIYAT MANZILI:**

Toshkent shahri, Yakkasaroy tumani, Kichik  
Beshyog‘och ko‘chasi, 70/10-uy. Elektron  
manzil: [scienceproblems.uz@gmail.com](mailto:scienceproblems.uz@gmail.com)

## MUNDARIJA

### **01.00.00 — FIZIKA VA MATEMATIKA FANLARI – PHYSICS AND MATHEMATICS SCIENCES**

*Usmonova Zebo*

IXTIYORIY SOHADAGI TO'RLI ELLIPTIK TENGLAMALARNI YECHISH UCHUN POPEREKENNO-UCHBURCHAKLI METOD (PTM) VA UNING MODIFIKATSIYASI ..... 4-7

### **02.00.00 — KIMYO FANLARI – CHEMISTRY SCIENCES**

*Umarova Ra'nogul*

FOLK MEDICINE IN UZBEKISTAN AND ITS HISTORICAL ROOTS: A TAPESTRY OF TRADITION, NATURE, AND WISDOM .....8-14

### **18.00.00 — ARXITEKTURA – ARCHITECTURE**

*Haqberdiyev Baxtiyor, Ismog'ilova Madinabonu*

O'ZBEKISTON SHAHARLARINING TARIXIY ARXITEKTURASINI ZAMONAVIY DIZAYN BILAN UYG'UNLASHTIRISH ..... 15-18

**02.00.00 — KIMYO FANLARI – CHEMISTRY SCIENCES***Article / Original Paper***FOLK MEDICINE IN UZBEKISTAN AND ITS HISTORICAL ROOTS: A TAPESTRY OF TRADITION, NATURE, AND WISDOM****Umarova Ra'nogul**Lecturer at the Siab medical college  
of public health named after Abu Ali Ibn Sina

**Annotation.** Nestled at the heart of the Silk Road, Uzbekistan stands as a living repository of ancient medical knowledge, where folk healing practices have evolved over millennia into a sophisticated system of health and well-being. This article explores the profound historical roots of Uzbek folk medicine, tracing its journey from pre-Islamic animism and shamanism, through the transformative Golden Age of Islamic science, to its resilient presence in the modern era. We examine its core philosophical principles—balance, harmony with nature, and preventive care—and detail its primary modalities, including phytotherapy, dietetics, manual therapies, and spiritual-psychological practices. By analyzing the scientific validation of certain traditional remedies and the ongoing process of integration with contemporary healthcare, this article argues that Uzbek folk medicine is not a relic of the past but a dynamic, culturally vital system that offers holistic insights relevant to global health paradigms today.

**Keywords:** Folk medicine, Islamic Synthesis and Scholarly Apogee, Principles of Harmony and Balance, Core Modalities and Materia Medica, Integration, Science, and Challenges

**O'ZBEKISTONDA XALQ TIBBIYOTI VA UNING TARIXIY ILDIZLARI: AN'ANA, TABIAT VA DONOLIK GOBELENI****Umarova Ra'nogul**

Abu Ali Ibn Sino nomidagi Siyob tibbiyot kolleji o'qituvchisi

**Annotatsiya.** Buyuk Ipak yo'lining markazida joylashgan O'zbekiston qadimgi tibbiy bilimlarning tirik ombori bo'lib, u yerda xalq tabobati amaliyotlari ming yillar davomida sog'liq va farovonlikning murakkab tizimiga aylangan. Ushbu maqola o'zbek xalq tabobatining chuqur tarixiy ildizlarini o'rganadi, uning islomgacha bo'lgan animizm va shamanizmdan tortib, islom ilmining o'zgaruvchan Oltin davrigacha bo'lgan yo'lini kuzatib boradi. Biz uning asosiy falsafiy tamoyillarini - muvozanat, tabiat bilan uyg'unlik va profilaktika - o'rganamiz va uning asosiy usullarini, jumladan, fitoterapiya, parhezshunoslik, qo'lda terapiya va ma'naviy-psixologik amaliyotlarni batafsil bayon qilamiz. Ushbu maqolada ayrim an'anaviy davolash usullarining ilmiy asoslanishi va zamonaviy sog'liqni saqlash bilan integratsiyalashuv jarayoni tahlil qilinib, o'zbek xalq tabobati o'tmishning qoldig'i emas, balki bugungi kunda global sog'liqni saqlash paradigmalariga tegishli yaxlit tushunchalarni taqdim etuvchi dinamik, madaniy jihatdan muhim tizim ekanligi ta'kidlanadi.

**Kalit so'zlar:** Xalq tabobati, Islom sintezi va ilmiy avj nuqtasi, Uyg'unlik va muvozanat tamoyillari, Asosiy usullar va Materia Medica, Integratsiya, Fan va muammolar.

**Introduction**

Folk medicine, or traditional medicine, represents far more than a collection of empirical remedies for illness. It is a holistic worldview, a cultural expression, and a cumulative body of knowledge that links communities to their environment, history, and spiritual beliefs. In Uzbekistan, a nation whose soil has been crossed by caravans, empires, and scholars for centuries, folk medicine embodies a unique synthesis of Turkic, Persian, Arabic, Indian, and

even Hellenistic influences. It is a testament to human ingenuity in utilizing the vast natural pharmacopeia of the Central Asian steppes, deserts, and mountains.

The World Health Organization defines traditional medicine as "the sum total of the knowledge, skill, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness" [1]. Uzbek folk medicine fits this definition perfectly, operating on principles distinct from, yet increasingly complementary to, allopathic biomedicine.

This article delves into the intricate tapestry of Uzbek folk healing. It begins by charting its historical evolution, moves to its philosophical underpinnings, details its primary practices and materia medica, and concludes with an analysis of its current status, scientific scrutiny, and potential for integrative healthcare. Through this exploration, we uncover a system where the sage advice of Avicenna (Ibn Sina) still resonates in the practices of contemporary «tabibs» (traditional healers), and where the humble cumin seed is as valued as any modern pharmaceutical.

## **I. Historical Roots: From Animism to the Academy**

The historical journey of Uzbek folk medicine is one of accretion and synthesis, where each epoch added a layer to its foundation.

### **1.1. Pre-Islamic Foundations: Animism, Shamanism, and Early Empires**

The deepest stratum of folk healing in the region originates in the animistic and shamanistic beliefs of the ancient Turkic and Iranian-speaking nomadic tribes. In this worldview, nature was imbued with spirits ("ruhs"), and illness was often perceived as a disturbance in the spiritual equilibrium—caused by the displeasure of ancestors, malicious jinn, or soul loss. The "shaman (bakhshi)" served as the primary healer, intermediary, and psychologist. Through ecstatic rituals involving drumming, chanting, and trance states, the shaman would diagnose spiritual causes and undertake soul-retrieval journeys [2]. Healing was a communal, ritualistic act that reinforced social bonds.

Concurrently, the settled civilizations of Sogdia and Khwarezm developed practical herbal and surgical knowledge. The influence of "Zoroastrianism" introduced the cardinal concept of purity and pollution, emphasizing clean elements like fire (Agni) and water for healing. The "Avesta", the Zoroastrian sacred text, contains some of the earliest references to medicinal plants in the region. Later, during the Kushan Empire, "Buddhist" monastic traditions brought practices of meditation, dietary regulation, and a more systematic approach to herbal compounds, leaving traces in the medicinal culture of the area.

### **1.2. The Golden Age: Islamic Synthesis and Scholarly Apogee**

The Arab-Muslim conquests of the 8th century and the subsequent flourishing of the Abbasid Caliphate catalyzed a profound intellectual revolution. The cities of Bukhara, Samarkand, Khiva, and Tashkent became luminous centers of learning. This era saw the deliberate and magnificent synthesis of existing folk knowledge with the classical medical traditions of Greece (Galen, Hippocrates), India (Ayurveda via the «Sushruta Samhita»), and Persia.

The "Galenic-Arabic humoral theory" became the dominant paradigm. It posited that health depended on the equilibrium of the four bodily humors ("akhlat"): blood ("dam"), phlegm ("balgham"), yellow bile ("safra"), and black bile ("sauda"). Each humor correlated with

specific qualities (hot/cold, wet/dry), seasons, elements, and personality temperaments (sanguine, phlegmatic, choleric, melancholic). This framework provided a theoretical language for folk practices, systematizing diagnoses and therapies [3].

It was in this milieu that two titanic figures emerged, whose work forever linked Uzbek land with medical history:

Abu Ali Ibn Sina (Avicenna, 980-1037): Born near Bukhara, Ibn Sina's monumental "al-Qanun fi al-Tibb" ("The Canon of Medicine") was arguably the most influential medical textbook in the world for over six centuries. The Canon did not merely summarize Greek knowledge; it integrated it with his own clinical observations and, crucially, with the vernacular folk medicine of Transoxiana. He meticulously described hundreds of local medicinal plants, minerals, and compounds, elevating regional practices to a global standard. His famous dictum, "The physician's duty is to aid nature, for nature is the true physician" [4], encapsulates the core principle of folk medicine—the body's inherent healing power ("vis medicatrix naturae").

Abu Rayhan al-Biruni (973-1048): A polymath from Khwarezm, al-Biruni's "Kitab al-Saydana fi al-Tibb" ("The Book of Pharmacy in Medicine") is a masterpiece of ethnopharmacology. He traveled extensively, recording the medicinal uses of plants, animals, and minerals across cultures, paying special attention to their local, vernacular names and applications in folk practice. His work is an invaluable snapshot of the medicinal knowledge circulating among the common people of Central Asia a millennium ago [5].

This period transformed folk medicine. While scholarly physicians ("hakims") practiced in courts and cities, their distilled knowledge filtered down to village healers, midwives, and herbalists, enriching the oral tradition. Conversely, the observations of these local practitioners informed the works of the scholars, creating a dynamic feedback loop between the elite and the folk traditions.

### 1.3. The Medieval and Early Modern Periods: Continuity and Codification

In the wake of the Mongol invasions and during the reign of subsequent Timurid and Khanate rulers, the medical tradition persisted. Manuscripts on "tibb" (medicine) were copied and recopied in madrasas. The figure of the "tabib" - a learned practitioner often trained in a madrasa—became central. These tabibs were walking repositories of both classical Arabic medicine and localized folk wisdom. They prepared complex herbal compounds ("ma'juns"), set bones, performed minor surgeries, and provided dietary counsel. Alongside them, female healers ("otinbuvis" or "kampirkhal") specialized in women's health, childbirth, pediatrics, and the use of household herbs.

### 1.4. The Russian Imperial and Soviet Eras: Repression and Resilience

The 19th-century Russian colonization and the subsequent Soviet rule presented severe challenges. The Soviet state, championing a materialist, scientific worldview, officially condemned folk medicine as "superstition" and "quackery". Many tabibs were persecuted, and traditional practices were driven underground [6]. However, they never disappeared. In rural areas, far from the state's gaze, the knowledge was preserved within families. Ironically, Soviet phytochemistry also conducted extensive research on Central Asian flora, scientifically isolating active compounds from plants long used in folk medicine, thus inadvertently validating aspects of the tradition.

### 1.5. The Renaissance of Independence

Since Uzbekistan's independence in 1991, there has been a vigorous national revival of cultural heritage, and folk medicine is a key component. It is now seen not as a competitor to modern medicine but as a complementary part of national identity and holistic healthcare. The government has established research institutes, licensed "Tabobat" centers, and begun the process of integrating evidence-based traditional practices into the public health framework.

## II. Philosophical Framework: The Principles of Harmony and Balance

Uzbek folk medicine is undergirded by a coherent, albeit non-Western, philosophical system.

1. The Principle of Balance (Muvozanat): Health is equated with dynamic equilibrium—between the humors, between hot and cold qualities, and between the individual and their environment. Illness is "muvozanatsizlik" (imbalance). Treatment aims not to attack a pathogen per se, but to restore this inherent balance.

2. Harmony with Nature (Tabiat bilan Hamkorlik): Humans are a microcosm ("olam saghir") of the macrocosm. The rhythms of nature—the seasons, lunar cycles, times of day—directly influence bodily functions. Treatment involves aligning one's lifestyle, diet, and therapies with these natural rhythms. "Spring cleansing" regimens and seasonal dietary shifts are common.

3. Primacy of Prevention (Oldini Olish): A cornerstone of the tradition. Proverbial wisdom states, "Kasal bo'lishingdan qo'rqma, kasal bo'lib qolishingdan qo'rq" ("Fear not falling ill, fear remaining ill"). Daily routines ("hifz al-sihha", hygiene of health), moderation in all things, and mindful eating are considered the first line of defense.

4. Individualized Treatment (Shaxsiylashtirilgan Davolash): There is no "one-size-fits-all". A patient's unique constitution ("mizoj"), age, lifestyle, and even emotional state are considered before prescribing a remedy. What is "hot" for one may be "cold" for another.

5. Holism (Yaxlitlik): The mind, body, and spirit are inseparable. Emotional distress ("sarsor") is a recognized cause of physical illness. Therefore, therapies often address psychological and spiritual dimensions alongside physical symptoms.

## III. Core Modalities and Materia Medica

### 3.1. Phytotherapy (Dorivor O'simliklar bilan Davolash)

This is the most developed and widely practiced branch. Uzbekistan's diverse ecosystems host over 4,500 plant species, of which nearly 1,000 are used medicinally [7].

Common Plants and Applications:

Licorice Root (O'qoyoq, "Glycyrrhiza glabra"): Used for coughs, sore throats, gastric ulcers, and as a sweetener. Modern science confirms its anti-inflammatory (glycyrrhizin) and demulcent properties [8].

Cumin (Zira, "Cuminum cyminum"): A quintessential "hot" spice for digestive ailments, flatulence, and to stimulate appetite. Research supports its carminative, antimicrobial, and antioxidant effects [9].

Anise (Isiriq, "Pimpinella anisum"): For cough, bronchitis, and as a galactagogue. Rich in anethole, a proven antispasmodic and expectorant.

Asian Wormwood (Choya, "Artemisia cina" and others): The classic anthelmintic for intestinal parasites. Its active compound, santonin, was isolated in the 19th century.

Mint (Yalpiz/Na'na, "Mentha spp."): For headaches, nausea, indigestion, and calming nerves. Menthol provides a cooling sensation and muscle-relaxant effect.

Pomegranate (Anor, “Punica granatum”): The fruit, peel, and bark are used for diarrhea, oral health, and as a general tonic. Extensively studied for its potent antioxidant and anti-inflammatory polyphenols.

Nuts and Seeds: Apricot kernels (“urug’i”), almonds, and sesame seeds are valued for nutrition and specific medicinal properties.

Preparation Methods: Decoctions (“qaynatma”), infusions (“demlash”), macerations in oil or vinegar (“zaytun”), syrups (“sharbat”), jams (“murabbo”), poultices (“kors”), and inhaled steams (“inhalatsiya”).

### 3.2. Dietotherapy (Ovqatlanish Orqali Davolash)

Food is the first medicine. Every ingredient is classified by its inherent “energy”: Issiq (Hot/Warming) - e.g., mutton, honey, pepper, most spices; and Sovuq (Cold/Cooling) - e.g., yogurt, cucumbers, watermelon, spinach. A “hot” condition like fever or inflammation is treated with “cold” foods, and vice-versa. Meals are designed to balance these qualities. Fermented foods like “kurt” (dried yogurt balls) and “katiq” (yogurt) are prized for gut health.

### 3.3. Manual and Physical Therapies

Massage (Massaj): Deep tissue massage (“urish”), often using therapeutic oils (sesame, apricot kernel), is used for musculoskeletal pain, relaxation, and to improve circulation. Infant massage is universal for promoting growth and strength.

Cupping (Hijoma/Bank): Two main types: dry cupping (creating suction on the skin) and wet cupping (making small incisions to draw out “stagnant” blood). It is believed to remove pathogenic factors, relieve pain, and improve local blood flow. Studies suggest it may modulate immune response and pain perception [10].

Bone Setting (Sindirik Bosish): A specialized skill passed down in families for treating dislocations and fractures using manual manipulation and herbal splints.

Thermo-therapy: Application of heated sand (“qumlash”), salt, or special clays (“gil”) to painful joints and muscles.

### 3.4. Spiritual-Psychological and Symbolic Practices

While sometimes labeled “superstition”, these practices serve important psychosomatic and cultural functions.

Amulets and Talismans (Tumor/Duhor): Inscribed verses from the Quran or symbolic patterns worn for protection from the “evil eye” (“ko’z tegishi”) or illness.

Pilgrimage (Ziyorat): Visiting the tombs (“mazars”) of Sufi saints or local holy figures to seek blessing (“Baraka”) and healing. The ritual, hope, and communal support can have powerful placebo and therapeutic effects.

Ritual and Incantation (Og’zaki Ilojlar): The recitation of prayers, Quranic verses, or folk poetry (“katta”) over a patient, often combined with physical touch. This practice, a direct descendant of shamanic incantation, provides profound psychological comfort and a sense of intervention.

## IV. Folk Medicine in the 21st Century: Integration, Science, and Challenges

Today, Uzbek folk medicine exists in a dynamic interplay with globalized biomedicine.

### 4.1. Scientific Scrutiny and Validation

A significant driver of its modern legitimacy is pharmacological research. Institutes like the Tashkent Pharmaceutical Institute and the Institute of Botany of Uzbekistan actively study endemic plants. Compounds like “glycyrrhizin” (licorice), “capsaicin” (pepper), and

various essential oils have entered the global pharmacopeia, validating their traditional uses. This “bioprospecting” continues, with scientists looking to traditional knowledge for leads on new drugs.

#### 4.2. Formal Integration and Regulation

The state has moved to formalize the practice:

Licensed “Tabobat” Centers: Offer traditional treatments (herbal, manual) under the supervision of certified “tabibs”.

Academic Study: Courses in phytotherapy and traditional medicine are offered in medical and pharmaceutical universities.

Pharmaceutical Industry: Companies produce standardized herbal teas, tinctures, and supplements based on traditional formulas.

#### 4.3. Persistent Challenges and Criticisms

Lack of Standardization: The potency of herbal preparations can vary widely.

Safety Concerns: Potential for misidentification of plants, contamination, or interaction with pharmaceutical drugs.

Delay of Effective Care: The risk that patients with serious conditions may postpone seeking evidence-based medical treatment.

Commercialization and Erosion: The risk of authentic knowledge being diluted or exploited for tourism in a superficial way.

### Conclusion

Folk medicine in Uzbekistan is a river fed by countless historical tributaries—ancient Turkic shamanism, Zoroastrian purity rites, Greek humoral theory, Ayurvedic botanicals, and the towering intellectual achievements of the Islamic Golden Age. It is a system that views health as a state of harmonious balance within the individual and between the individual and the cosmos.

Its strength lies in its holistic, preventive, and personalized approach, its deep ecological awareness, and its profound cultural resonance. While not a substitute for the acute and technological marvels of modern biomedicine, it offers complementary strategies for chronic disease management, preventive wellness, and psychosomatic health that are increasingly valued worldwide.

The future of Uzbek folk medicine lies in a respectful, critical, and synergistic dialogue with modern science. By subjecting its remedies to rigorous clinical trial, standardizing its safest and most effective practices, and training a new generation of practitioners who are bilingual in both traditional wisdom and scientific methodology, Uzbekistan can ensure that this rich heritage continues to heal and nurture its people. In doing so, it preserves not just a collection of remedies, but a vital philosophy—that human health is inextricably woven into the broader web of nature, culture, and history.

### Adabiyotlar/Literatura/References

1. World Health Organization. (2013). «WHO traditional medicine strategy: 2014-2023». Geneva: World Health Organization.
2. Basilov, V. N. (1992). «Shamanstvo u narodov Sredney Azii i Kazakhstana» [Shamanism of the Peoples of Central Asia and Kazakhstan]. Moscow: Nauka.

3. Saidov, M. S. (2005). «Traditsionnaya meditsina narodov Sredney Azii: istoriya i sovremennost» [Traditional Medicine of the Peoples of Central Asia: History and Modernity]. Tashkent: Fan.
4. Ibn Sina, A. A. (1025). «Al-Qanun fi al-Tibb» [The Canon of Medicine]. (L. Bakhtiyorov, Trans.). Tashkent: Ibn Sina Publishing. (Original work published in the 11th century).
5. Al-Biruni, A. R. (1050). «Kitab al-Saydana fi al-Tibb» [The Book of Pharmacy in Medicine]. (U. Karimov, Ed.). Tashkent: Uzbek Academy of Sciences.
6. Khalid, A. (2007). «Islam after Communism: Religion and Politics in Central Asia». Berkeley: University of California Press.
7. Khojimatov, M., & Ganiev, U. (2019). «Lekarstvennye rasteniya Uzbekistana i ikh ispolzovanie v narodnoy meditsine» [Medicinal Plants of Uzbekistan and Their Use in Folk Medicine]. Tashkent: Navro‘z.
8. Fiore, C., Eisenhut, M., Ragazzi, E., Zanchin, G., & Armanini, D. (2005). A history of the therapeutic use of liquorice in Europe. «Journal of Ethnopharmacology», 99(3), 317–324.
9. Sowbhagya, H. B. (2019). Chemistry, technology, and nutraceutical functions of cumin («Cuminum cyminum» L.): an overview. «Critical Reviews in Food Science and Nutrition», 53(1), 1–10.
10. Ahmed, S. M., Madbouly, N. H., Maklad, S. S., & Abu-Shady, E. A. (2005). Immunomodulatory effects of blood letting cupping therapy in patients with rheumatoid arthritis. «The Egyptian Journal of Immunology», 12(2), 39–51.

# **NATSCIENCES.UZ**

*№ 2 (1)-2025*

## **TABIY VA AMALIY FANLARNING DOLZARB MASALALARI**

## **TOPICAL ISSUES OF NATURAL AND APPLIED SCIENCES**

## **АКТУАЛЬНЫЕ ВОПРОСЫ ЕСТЕСТВЕННЫХ И ПРИКЛАДНЫХ НАУК**

**TABIY VA AMALIY FANLARNING  
DOLZARB MASALALARI** elektron jurnali  
2025-yil 7-iyul kuni 876362-sonli  
guvohnoma bilan davlat ro'yxatidan  
o'tkazilgan.

**Muassis:** "SCIENCEPROBLEMS TEAM"  
mas'uliyati cheklangan jamiyati.

**TAHRIRIYAT MANZILI:**

Toshkent shahri, Yakkasaroy tumani, Kichik  
Beshyog'och ko'chasi, 70/10-uy. Elektron  
manzil: [scienceproblems.uz@gmail.com](mailto:scienceproblems.uz@gmail.com)