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**PATHOLOGIES ASSOCIATED WITH INADEQUATE EDUCATIONAL
CONDITIONS IN GENERAL EDUCATION SCHOOLS AND THEIR
PREVENTION**

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Abstract *The school environment is one of the major determinants of children's physical, psychological and social well-being. Students spend a substantial proportion of their daily time at school; therefore, inadequate educational conditions may contribute to the development or aggravation of preventable health disorders. This thesis examines the principal health problems potentially associated with inappropriate physical and organizational conditions in general education schools and summarizes evidence-based preventive approaches. Particular attention is given to visual strain, musculoskeletal disorders, respiratory and infectious diseases, physical inactivity, fatigue, and psychosocial stress. Important environmental risk factors include inadequate lighting, poor ventilation and indoor air quality, inappropriate furniture, prolonged static posture, insufficient physical activity, excessive academic workload, inadequate water and sanitation facilities, and insufficient opportunities for rest and recovery. A health-promoting school approach, based on regular environmental assessment, ergonomic adaptation, adequate ventilation and lighting, active breaks, physical activity, appropriate workload, hygiene measures, and school health services, should be implemented systematically. Prevention requires cooperation between educational institutions, healthcare professionals, parents, and public authorities. Creating safe, inclusive and health-oriented schools can contribute simultaneously to disease prevention, student well-being and improved learning outcomes.*

Keywords: *school environment, schoolchildren, educational conditions, pathology, ergonomics, visual strain, musculoskeletal disorders, prevention, school health, health-promoting school.*

Introduction Children and adolescents spend many hours each day in classrooms and other school facilities. Consequently, the physical and organizational characteristics of the educational environment can have an important influence on their health and learning. The World Health Organization (WHO) identifies the physical school environment—including classrooms, lighting, water and sanitation facilities, equipment and opportunities for physical activity—as an important component of a health-promoting school.

Educational conditions become problematic when they do not correspond to students' age, anthropometric characteristics, physiological needs and health requirements. Such



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discrepancies may include inappropriate desk and chair dimensions, inadequate illumination, insufficient ventilation, excessive noise, prolonged sitting, limited physical activity, inadequate sanitary facilities and excessive academic workload.

Aim The aim of this thesis is to summarize the principal pathologies and functional health problems associated with inadequate educational conditions in general education schools and to identify evidence-based approaches for their prevention.

Materials and Methods

The thesis is based on a narrative analysis of scientific and institutional evidence concerning school health, the physical school environment, indoor air quality, physical activity, sanitation and school health services. Key recommendations and evidence were reviewed from publications of the World Health Organization and UNICEF, with emphasis on preventive and health-promoting interventions applicable to school settings.

Results and Discussion

1. Visual disorders and visual fatigue

Insufficient or excessive classroom illumination, glare, inappropriate viewing distances and prolonged visual concentration may contribute to eye fatigue, headaches and visual discomfort. Modern educational environments may additionally increase visual demands because of the widespread use of digital devices.

Preventive measures should include appropriate classroom illumination, reduction of glare, correct positioning of desks relative to windows and screens, regular visual breaks and periodic assessment of students' visual health.

2. Musculoskeletal disorders and postural abnormalities

Inappropriate school furniture is an important ergonomic concern. Desks and chairs that do not correspond to students' height and anthropometric characteristics may encourage prolonged non-neutral postures. Combined with extended sitting and insufficient movement, this may contribute to back, neck and shoulder discomfort and may aggravate postural problems.

Prevention should involve age- and height-appropriate furniture, ergonomic seating arrangements, regular changes of posture, active breaks and incorporation of physical activity into the school day. WHO emphasizes the importance of reducing sedentary behaviour and integrating physical activity into school systems.

3. Respiratory and environmentally related health problems

Poor ventilation and inadequate indoor air quality can increase exposure to pollutants and biological contaminants. WHO specifically identifies indoor air pollutants in schools and other settings for children as a relevant area of health-risk assessment. Appropriate ventilation, regular maintenance of ventilation systems, control of indoor pollutants, prevention of overcrowding and adequate cleaning procedures are therefore important preventive measures.

4. Infectious diseases and hygiene-related conditions

Insufficient access to safe drinking water, sanitation facilities and handwashing infrastructure can increase risks associated with infectious diseases and negatively affect the



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learning environment. UNICEF and WHO have documented persistent inequalities in school water, sanitation and hygiene (WASH) services globally.

Preventive strategies should include reliable access to safe drinking water, functional toilets, soap and handwashing facilities, appropriate waste management, hygiene education and regular monitoring of sanitary conditions.

5. Physical inactivity and metabolic health risks

Prolonged sitting and insufficient opportunities for movement can contribute to sedentary behaviour and may adversely affect children's overall health. WHO recommends integrating regular physical activity into primary and secondary school systems and using the school environment to reduce sedentary behaviour.

Schools should provide structured physical education together with active breaks, opportunities for recreational movement and safe outdoor activities.

6. Fatigue and psychosocial problems

Inadequate educational conditions are not limited to physical environmental factors. Excessive academic workload, insufficient rest, overcrowding, excessive noise and limited opportunities for psychological recovery may contribute to fatigue, reduced concentration and psychosocial discomfort.

A health-promoting school therefore requires not only safe physical infrastructure but also supportive educational practices and access to appropriate school health services. WHO notes that safe and supportive school environments are associated with better health outcomes and educational performance. Sog'liqni Saqlash Tashkiloti

Prevention Strategy

An effective prevention programme should follow an integrated, whole-school approach:

1. Environmental monitoring: regular assessment of lighting, ventilation, temperature, noise, sanitation and classroom density.

2. Ergonomic adaptation: selection of desks and chairs according to students' anthropometric characteristics and age.

3. Movement promotion: implementation of active breaks, physical education and opportunities for daily physical activity.

4. Visual health protection: adequate illumination, reduction of glare and organization of appropriate visual working conditions.

5. Hygiene and WASH: provision of safe water, functional sanitation and handwashing facilities.

6. Healthy workload management: balancing academic requirements with adequate breaks and recovery periods.

7. School health surveillance: periodic preventive examinations and early identification of functional abnormalities.

8. Health education: development of students' knowledge and practical skills concerning posture, physical activity, nutrition, hygiene and healthy digital-device use.



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9. Intersectoral cooperation: coordinated action involving teachers, school administrators, healthcare professionals, parents and relevant public authorities.

WHO's current school-health framework supports a comprehensive approach in which school health services, healthy physical environments and health promotion are integrated rather than addressed separately. [1,2,4]

Conclusion

Inadequate educational conditions can create a range of modifiable risk factors for the health of school-aged children. Visual fatigue, musculoskeletal complaints, respiratory and hygiene-related problems, physical inactivity, fatigue and psychosocial difficulties may be associated with deficiencies in the physical and organizational school environment. Prevention should therefore focus on early identification and correction of environmental and educational risk factors rather than solely on treatment after pathology develops.

A systematic health-promoting school model—including ergonomic classrooms, adequate lighting and ventilation, safe WASH facilities, regular physical activity, appropriate academic workload and accessible school health services—can provide a healthier and more inclusive learning environment. The integration of health and education policies is essential for protecting children's health while simultaneously supporting their educational development.[5,6,7,8]

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ГАСТРОЭНТЕРОЛОГИЯ И МЕТАБОЛИЗМ: РОЛЬ КИШЕЧНОЙ
МИКРОБИОТЫ В РАЗВИТИИ СИНДРОМА

Якубова Хадичахон Касымхоновна

422 - группа пед фак

Введение: Изучение микробного пейзажа желудочно-кишечного тракта представляет собой одно из самых актуальных направлений современной медицинской науки, кардинально меняющее представления о патогенезе многих болезней. Главным фактором, связывающим изменения микробного состава с метаболическими нарушениями, является системное воспаление низкой интенсивности, индуцированное продуктами жизнедеятельности дисбиотической флоры. Это явление оказывает существенное воздействие на энергетический гомеостаз организма, вызывая прогрессирование инсулинорезистентности, ожирения и сопутствующих патологий.

Ключевые слова: микробиом, метаболический синдром, дисбиоз, воспаление, инсулинорезистентность.

Цель исследования: Исследовать характер изменений качественного и количественного состава кишечной микробиоты у пациентов с признаками метаболического синдрома, выявить маркеры дисбиоза. Оценить степень влияния измененного микробного профиля на проницаемость кишечного барьера и уровень системного воспаления. Предложить возможные диетические и пробиотические стратегии коррекции микробного баланса для профилактики метаболических осложнений.

Материалы и методы: Анализ клинико-лабораторных данных пациентов с метаболическими нарушениями, результатов метагеномного секвенирования образцов кала и диетологических карт. Изучение концентрации короткоцепочечных жирных кислот и маркеров воспаления в сыворотке крови. Использование статистических методов для корреляционного анализа между микробными кластерами и показателями углеводного обмена. Оценка эффективности комплексных мер коррекции состава микробиома в динамике.

Результаты и обсуждения: Нарушения микробного баланса приводят к следующим патофизиологическим изменениям: увеличение проницаемости кишечной стенки и транслокация бактериальных липополисахаридов в системный кровоток. Активация хронического воспалительного ответа в жировой ткани и печени, усугубляющая инсулинорезистентность. Нарушение процессов ферментации пищевых волокон и избывлению энергии из потребленной пищи. Различные группы пациентов имеют индивидуальные особенности микробиома, зависящие от характера питания, возраста и сопутствующей терапии. Наиболее выраженные признаки дисбиоза наблюдаются у лиц с висцеральным ожирением и несбалансированной



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диетой. Восстановление метаболического здоровья требует комплексного подхода, включающего модификацию рационов питания, использование пребиотиков и адресное применение синбиотических комплексов.

Вывод: Кишечная микробиота играет ключевую роль в регуляции метаболических процессов и патогенезе метаболического синдрома. Целенаправленная коррекция микробного дисбаланса открывает новые эффективные возможности для профилактики и лечения метаболических расстройств. Необходимы дальнейшие исследования для создания персонализированных схем восстановления микробного пула с учетом индивидуальных особенностей организма.



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AJDODLAR MEROSI — MA'NAVİY KAMOLOT MANBAI

Nizomiy nomidagi O'zMPU Tarix fakulteti "Milliy g'oya, ma'naviyat asoslari va huquq ta'limi" yo'nalishi 2-bosqich talabasi

Baxtiyorova Gulsanam Baxtiyor qizi

Annotatsiya: *Ushbu maqolada ajdodlarimizdan bizgacha yetib kelgan boy ma'naviy, ilmiy, madaniy va tarixiy merosning inson ma'naviy kamolotidagi o'rni haqida fikr yuritiladi. O'zbek xalqi tarixida jahon ilm-fani, madaniyati, adabiyoti va ma'naviy taraqqiyotiga katta hissa qo'shgan Muhammad al-Xorazmiy, Abu Nasr Forobiy, Abu Rayhon Beruniy, Abu Ali ibn Sino, Imom Buxoriy, Imom Termiziy, Abu Mansur Moturidiy, Mirzo Ulug'bek, Alisher Navoiy, Zahiriddin Muhammad Bobur, Amir Temur va boshqa buyuk siymolarning faoliyati yoritiladi. Shuningdek, ajdodlar merosining yoshlar tarbiyasida, milliy o'zlikni anglashda, vatanparvarlik va insonparvarlik tuyg'ularini shakllantirishdagi ahamiyati tahlil qilinadi. Maqolada tarixiy merosni asrash, o'rganish va uni zamonaviy avlodga yetkazish masalalariga ham alohida e'tibor qaratiladi.*

Kalit so'zlar: *ajdodlar merosi, ma'naviyat, ma'naviy kamolot, tarixiy xotira, milliy qadriyatlar, milliy o'zlik, vatanparvarlik, ma'rifat, ilm-fan, yoshlar tarbiyasi, buyuk allomalar, madaniy meros*

Insoniyat tarixida shunday xalqlar borki, ularning yaratgan ilmiy, madaniy va ma'naviy merosi butun dunyo taraqqiyotiga katta ta'sir ko'rsatgan. O'zbek xalqi ana shunday boy tarixga ega xalqlardan biridir. Yurtimiz hududi qadimdan ilm-fan, madaniyat, hunarmandchilik, savdo-sotiq va ma'rifat rivojlangan maskanlardan biri bo'lib kelgan. Bu zamin ko'plab buyuk olimlar, mutafakkirlar, shoirlar, davlat arboblari va ma'rifatparvarlarni voyaga yetkazgan. Ajdodlarimizning bizga qoldirgan merosi nihoyatda keng va serqirradir. Unga ilmiy asarlar, tarixiy manbalar, me'moriy obidalar, adabiy asarlar, xalq og'zaki ijodi, urf-odatlar, an'analar, axloqiy qarashlar, hunarmandchilik maktablari va boshqa ko'plab qadriyatlar kiradi. Bularning barchasi xalqimizning ko'p asrlik hayot tajribasini, dunyoqarashini va ma'naviy qiyofasini o'zida aks ettiradi. Bugungi globallashuv sharoitida bu masala yanada dolzarb ahamiyat kasb etmoqda. Dunyoning turli hududlarida turli madaniyatlar, g'oyalar va axborotlar tez tarqalmoqda. Bunday sharoitda yoshlarning milliy qadriyatlarga hurmat ruhida tarbiyalanishi, tarixiy xotirasi mustahkam bo'lishi muhimdir, ajdodlar merosi esa bu borada mustahkam ma'naviy tayanch vazifasini bajaradi. O'zbekiston hududi qadimdan jahon sivilizatsiyasining muhim markazlaridan biri bo'lib kelgan. Bu hududdan yetishib chiqqan allomalar nafaqat o'z davrining, balki butun insoniyat ilm-fanining rivojlanishiga katta hissa qo'shgan. Muhammad al-Xorazmiy matematika fanining rivojiga ulkan hissa qo'shgan buyuk olimlardan biridir. Uning nomi bilan bog'liq "algoritm" tushunchasi bugungi zamonaviy axborot texnologiyalarining asosiy atamalaridan biriga aylangan. Xorazmiyning ilmiy faoliyati ajdodlarimizning aniq fanlarga ham katta e'tibor berganini ko'rsatadi. Abu Rayhon Beruniy qomusiy olim sifatida tarix, geografiya,



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astronomiya, matematika, mineralogiya va boshqa ko‘plab fanlarda ilmiy izlanishlar olib borgan. Beruniy ilm olishda kuzatish, tajriba va mantiqiy xulosaga katta ahamiyat bergan. Uning ilmiy merosi bugungi kunda ham tadqiqotchilar uchun muhim manba hisoblanadi. Abu Ali ibn Sino esa jahon tibbiyot tarixida alohida o‘rin tutadigan buyuk allomadir va uning “Tib qonunlari” asari uzoq vaqt davomida Sharq va Yevropa mamlakatlarida tibbiyot fanining muhim qo‘llanmalaridan biri bo‘lib xizmat qilgan. Ibn Sino nafaqat tabib, balki faylasuf, olim va mutafakkir sifatida ham katta meros qoldirgan. Abu Nasr Forobiy inson, jamiyat, davlat va axloq masalalarini chuqur o‘rgangan. Uning “Fozil odamlar shahri” asarida komil inson, adolatli jamiyat va ezgu boshqaruv haqidagi qarashlar ilgari surilgan. Forobiy ta’limotida insonning baxt-saodatga erishishi ilm, axloq va ezgu faoliyat bilan bog‘lanadi. Diniy-ma’rifiy merosimizda ham buyuk allomalarimizning o‘rni beqiyos. Imom Buxoriy hadis ilmining eng buyuk namoyandalaridan biri sifatida tanilgan, uning “Al-jome’ as-sahih” asari islom olamida eng mashhur hadis to‘plamlaridan biridir. Imom Termiziy ham hadis ilmining rivojiga katta hissa qo‘shgan. Abu Mansur Moturidiy esa kalom ilmi va islom falsafasi rivojida muhim o‘rin tutadi. Bu buyuk siymolarning hayoti va faoliyatida umumiy jihat mavjud: ular ilmni inson hayotini yaxshilashga xizmat qiluvchi buyuk kuch deb bilganlar. Ularning merosi bugungi yoshlarni bilim olish, izlanish va tafakkur qilishga undaydi. Ajdodlarimiz merosi haqida gapirganda Amir Temur va temuriylar davriga alohida to‘xtalish zarur. Amir Temur markazlashgan davlat barpo etib, Movarounnahrning siyosiy va iqtisodiy qudratini mustahkamlashga katta e’tibor bergan. Uning davlat boshqaruvi, harbiy san’at, bunyodkorlik va diplomatiya sohasidagi faoliyati tariximizda muhim o‘rin egallaydi. Amir Temur davrida Samarqand yirik siyosiy, iqtisodiy va madaniy markazlardan biriga aylandi. Ko‘plab me’moriy inshootlar bunyod etildi, savdo yo‘llari rivojlantirildi, hunarmandchilik va ilm-fanga e’tibor kuchaydi. Temuriylar davrida ilm-fan va madaniyat yanada rivojlandi. Mirzo Ulug‘bek astronomiya fanining rivojiga katta hissa qo‘shdi. Samarqandda rasadxona qurdirib, o‘z davrining eng ilg‘or astronomik kuzatuvlarini olib bordi. Uning “Ziji jadidi Ko‘ragoniy” asari astronomiya tarixida muhim ilmiy manbalardan biridir. Mirzo Ulug‘bekning hayoti bizga yana bir muhim saboq beradi: davlat boshqaruvi bilan bir qatorda ilm-fan va ma’rifatga e’tibor berish jamiyat taraqqiyotining muhim omilidir. O‘zbek mumtoz adabiyotining buyuk vakili Alisher Navoiy ma’naviy merosimizning eng yirik namoyandalaridan biridir. Uning ijodi insonni ezgulikka, adolatga, halollikka, ilmga va insonparvarlikka chorlaydi. Navoiy asarlarida komil inson g‘oyasi alohida o‘rin egallaydi. Shoir insonning haqiqiy qadrini uning boyligi yoki mansabi bilan emas, balki aql-zakovati, odobi, mehnati va yaxshi amallari bilan bog‘laydi. “Mahbub ul-qulub” asarida inson xarakteri, jamiyatdagi turli kasb va toifalar, axloqiy fazilatlar haqida chuqur fikrlar bildirilgan. Navoiy ilmi, halol va mehnatsevar insonni ulug‘laydi, jaholat, yolg‘onchilik, xudbinlik va adolatsizlikni qoralaydi. Bundan tashqari uni turkiy tilga o‘z hissasini qushgan buyuk alloma “Muhokamat ul lug‘atayn”, “Majolis un-nafois” — shoirlar va adabiyot namoyandalari haqida tazkira. “Mezon ul-avzon” — aruz vazni va she’riyat nazariyasiga bag‘ishlangan asar. “Nasoyim ul-muhabbat” — tasavvuf namoyandalari va mashhur shayxlar haqida. “Xazoyin ul-maoniy” — Navoiyning turkiy tildagi lirik

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she'rlaridan tuzilgan katta devon. "Munshaot" — maktublar va nasriy yozishmalar to'plami. "Vaqfiya" — Navoiy tomonidan amalga oshirilgan xayriya va bunyodkorlik ishlari haqida ma'lumot beruvchi asar kabi eng go'zal turkiy va forsiy til da yozilgan asalrai mavjud. Uning eng mashhur asari esa "Hamsa" bulib 5 dostonidan iborat. Zahiriddin Muhammad Bobur ham xalqimizning buyuk tarixiy siymolaridan biridir. U davlat arbobi, sarkarda, shoir va tarixchi sifatida katta meros qoldirgan. Boburning "Boburnoma" asari o'zbek tarixiy nasrining yirik namunalaridan biridir. Unda o'sha davr siyosiy hayoti, geografik hududlar, tabiat, shaharlar, urf-odatlar va kishilar haqida ko'plab ma'lumotlar keltiriladi. Bobur ijodida Vatanga muhabbat, ona yurt sog'inchi, insoniylik va hayot sinovlariga bardosh berish kabi g'oyalar katta o'rin egallaydi. Uning hayoti ham yoshlar uchun qat'iyat va matonat namunasidir. Milliy o'zlikni anglash insonning o'z xalqining tarixi, tili, madaniyati, qadriyatlari va urf-odatlarini bilishi bilan chambarchas bog'liq. Inson o'zining kimligini anglash uchun avvalo ajdodlari qanday hayot kechirganini, qanday qadriyatlarni yaratganini va jamiyat taraqqiyotiga qanday hissa qo'shganini bilishi kerak. Tarixiy xotira millatning ma'naviy immunitetini mustahkamlaydi. O'z tarixini bilmagan yoki unga befarq bo'lgan avlod turli yot g'oyalar ta'siriga tezroq berilishi mumkin. Shu sababli tarixiy merosni o'rganish yoshlar tarbiyasining muhim yo'nalishlaridan biri bo'lishi kerak. Milliy o'zlikni anglash boshqa xalqlarni inkor etish yoki ulardan ajralib yashash degani emas. Aksincha, o'z qadriyatlarini yaxshi bilgan inson boshqa xalqlarning madaniyatiga ham hurmat bilan qaraydi. Shu ma'noda milliy qadriyat va umuminsoniy qadriyatlar bir-birini to'ldiradi. Yoshlar har qanday jamiyatning kelajagini belgilaydi. Shu sababli ularning nafaqat bilimli, balki ma'naviy jihatdan yetuk bo'lishi ham muhimdir. Ajdodlarimizning hayoti yoshlar uchun o'ziga xos tarbiya maktabidir. Xorazmiyning ilmga bo'lgan intilishi, Beruniyning izlanishlari, Ibn Sinoning mehnatsevarligi, Ulug'bekning ilmiy faoliyati, Navoiyning insonparvarligi, Boburning matonati yosh avlod uchun ibrat bo'la oladi. Yoshlar ajdodlar hayotini o'rganish orqali muvaffaqiyatga erishish uchun tinimsiz mehnat qilish, bilim olish va qiyinchiliklardan qo'rqmaslik kerakligini anglaydi. Shuningdek, ajdodlar merosi yoshlarni vatanparvarlik ruhida tarbiyalashda ham katta ahamiyatga ega. O'z yurtidan yetishib chiqqan buyuk olim va mutafakkirlarning jahon tamadduniga qo'shgan hissasini bilgan yoshda Vatanga nisbatan faxr va mas'uliyat hissi kuchayadi. Ajdodlarimizdan qolgan moddiy meros ham xalqimiz tarixini anglashda muhim ahamiyatga ega. Samarqand, Buxoro, Xiva, Shahrisabz kabi tarixiy shaharlardagi me'moriy obidalar xalqimizning qadimiy madaniyati va bunyodkorlik salohiyatidan dalolat beradi. Registon majmuasi, Go'ri Amir maqbarasi, Bibixonim masjidi, Ulug'bek madrasasi, Ichan qal'a va boshqa ko'plab tarixiy obidalar ajdodlarimizning yuksak me'morchilik an'alarini namoyon etadi. Bunday obidalarni asrash va kelajak avlodga yetkazish milliy madaniy merosni muhofaza qilishning muhim qismidir. Ular yosh avlodga tarixni kitob orqali emas, balki bevosita ko'rish va his qilish imkonini beradi. Bugungi dunyoda globalashuv jarayonlari barcha xalqlar hayotiga ta'sir ko'rsatmoqda. Internet va ijtimoiy tarmoqlar orqali dunyoning turli hududlaridagi axborotlar bir necha soniyada tarqalmoqda. Bunday imkoniyatlar bilim olish uchun katta sharoit yaratadi. Shu bilan birga, yoshlarning ma'naviy dunyosiga salbiy ta'sir ko'rsatishi

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mumkin bo'lgan turli mazmundagi axborotlar ham mavjud. Shuning uchun yoshlarning ma'naviy immunitetini kuchaytirish muhimdir. Buning uchun ularga taqiqlar qo'yishning o'zi yetarli emas. Eng avvalo, ularda mustaqil fikrlash, axborotni tahlil qilish, yaxshini yomondan ajratish va milliy qadriyatlarga hurmat bilan qarash ko'nikmalarini shakllantirish kerak. Ajdodlar merosi bu jarayonda muhim ma'naviy tayanch bo'la oladi. Chunki o'z tarixini yaxshi bilgan inson zamonaviy dunyodagi o'zgarishlarni ham o'z milliy qadriyatlari bilan uyg'un holda qabul qila oladi. Tarixiy va ma'naviy merosni asrash faqat davlat tashkilotlarining vazifasi emas. Bu jarayonda har bir fuqaroning mas'uliyati mavjud. Tarixiy obidalarni asrash, kitoblarni qadrlash, milliy urf-odatlarini hurmat qilish, ajdodlarimizning ilmiy va adabiy merosini o'rganish orqali har bir inson o'z hissasini qo'shishi mumkin. Ayniqsa, yoshlarning bu jarayondagi ishtiroki muhim. Ular ilmiy loyihalar, konferensiyalar, tanlovlar, kitobxonlik tadbirlari va ma'rifiy loyihalar orqali tarixiy merosni keng targ'ib qilishi mumkin. Ularning merosini asrash va ongimizga singdirish miz uchun juda muhimdir. Ma'naviy va madaniy merosimiz xalqimizning buyuk merosi ularni yillar davomida avvalab asrash kelajak avlodga yitkazish lozim. Ajdodlardan qolgan ilmiy asarlar bugungi yoshlar uchun muhim saboq va yuriqlar kursatadi.

Xulosa qilsak, ajdodlar merosi — xalqimizning asrlar davomida shakllangan bebaho ma'naviy xazinasini. U bizning tariximiz, milliy o'zligimiz, madaniyatimiz va ma'naviyatimizning ajralmas qismidir. Buyuk ajdodlarimizning ilmiy, adabiy, falsafiy, diniy-ma'rifiy va madaniy merosi bugungi avlod uchun katta tarbiyaviy ahamiyatga ega. Ularning hayoti va faoliyati insonni ilm olishga, mehnat qilishga, ezgulik yaratishga, Vatanga sadoqatli bo'lishga va komillikka intilishga chorlaydi. Ayniqsa, yoshlar tarbiyasida ajdodlar merosidan samarali foydalanish muhimdir. Chunki ma'naviy jihatdan barkamol, tarixini yaxshi biladigan va milliy qadriyatlarini qadrlaydigan yoshlar mamlakat kelajagining mustahkam poydevorini yaratadi. Ajdodlar merosini asrash va rivojlantirish bugungi avlodning muhim vazifalaridan biridir. Bu merosni faqat yod olish emas, balki uning mazmunini anglash, hayotda qo'llash va kelajak avlodga yetkazish kerak. Shunday ekan, har bir yosh o'z ajdodlari bilan faxrlanish bilan birga, ularga munosib bo'lishga intilishi lozim. Chunki ajdodlarimizning buyukligi biz uchun nafaqat faxr, balki katta mas'uliyat hamdir. Ajdodlar merosini anglash — tarixni anglashdir. Tarixni anglash — o'zlikni anglashdir. O'zlikni anglash esa ma'naviy kamolot sari olib boradigan muhim yo'ldir.

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ILK BRONZA DAVRIDAN ANTIK DAVRGACHA: O'ZBEKISTON
HUDUDIDAGI URBANIZATSIYA JARAYONLARI

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Annotatsiya: *Ushbu maqolada O'zbekiston hududida qadimgi shaharlarning paydo bo'lishi, ularning sotsio-iqtisodiy, madaniy hamda harbiy-strategik omillari tahlil qilinadi. Arxeologik topilmalar (Jarg'oton, Afrosiyob, Yerg'o'rg'on, Qal'aligir, Dalvarzintepa va boshqalar) va yozma manbalar asosida bronza davridan boshlab antik davrgacha bo'lgan urbanizatsiya bosqichlari, sug'orma dehqonchilikning roli, hunarmandchilik hamda savdo munosabatlarining rivojlanishi haqida so'z olib boriladi.*

Kalit so'zlar: *Urbanizatsiya, Jarg'oton, shaharsozlik, arxeologiya, sug'orma dehqonchilik, mudofaa inshootlari.*

Аннотация: *В данной статье анализируются возникновение древних городов на территории Узбекистана, а также их социально-экономические, культурные и военно-стратегические факторы. На основе археологических находок (Джаркутан, Афрасиаб, Еркурган, Калаалигир, Дальверзинтепа и др.) и письменных источников рассматриваются этапы урбанизации от бронзового века до античного периода, роль ирригационного земледелия, развитие ремесла и торговых отношений.*

Ключевые слова: *урбанизация, Джаркутан, градостроительство, археология, ирригационное земледелие, оборонительные сооружения.*

Abstract: *This article analyzes the emergence of ancient cities in the territory of Uzbekistan and their socio-economic, cultural, and military-strategic factors. Based on archaeological findings (Jarkutan, Afrosiab, Yerkurgan, Qalaaligir, Dalvarzintepa, and others) and written sources, the stages of urbanization from the Bronze Age to the Classical period are examined, with particular attention paid to the role of irrigated agriculture and the development of handicrafts and trade relations.*

Keywords: *urbanization, Jarkutan, urban planning, archaeology, irrigated agriculture, defensive structures.*

Markaziy Osiyo, xususan, O'zbekiston hududi insoniyat sivilizatsiyasi va ilk shaharsozlik madaniyati shakllangan eng qadimgi o'choqlardan biri hisoblanadi. Bronza va ilk temir davrlariga kelib, mintaqada atroq dehqonchilik, hunarmandchilik hamda sun'iy sug'orish tizimlarining rivojlanishi natijasida dastlabki shahar ko'rinishidagi manzilgohlar va qadimgi kentlar paydo bo'la boshladi. O'zbekiston hududidagi qadimgi shaharlarning paydo bo'lishi va evolyutsiyasini o'rganish nafaqat hududiy tarixni, balki butun sharq sivilizatsiyasining ijtimoiy-iqtisodiy hamda madaniy taraqqiyot qonuniyatlarini tushunishda muhim ahamiyat kasb etadi. O'zbekiston hududida urbanizatsiya jarayonlarining



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shakllanishi va rivojlanishi masalalari ko'plab taniqli arxeolog hamda tarixshunos olimlar (A. Asqarov, Ya. G'ulomov, V. Masson, E. Rtveladze va b.) tomonidan atroflicha tadqiq etilgan. Surxandaryo vohasidagi Jargon— Sopolli madaniyati ob'yektlari, So'g'diyonadagi Afrosiyob va Yerg'o'rg'on, shuningdek, Qadimgi Xorazm va Farg'ona vodiysi yodgorliklarida olib borilgan arxeologik qazishmalar ilk shaharsozlik poydevori aynan bronza va ilk temir davrida qo'yilganligini ilmiy jihatdan tasdiqladi. O'zbekiston hududida ilk shaharsozlik madaniyatining ildizlari va urbanizatsiyaning eng dastlabki kurtaklari miloddan avvalgi II ming yillikning birinchi yarmi hamda Bronza davriga borib taqaladi. Mintaqada shaharsozlik ko'rinishlarining paydo bo'lishi tasodifiy jarayon emas, balki ming yillar davomida jamiyatda kechgan tub iqtisodiy-ijtimoiy, texnologik va demografik o'zgarishlarning natijasi edi. Bronza davriga kelib, mis va qalay qotishmasidan iborat bo'lgan bronza metallining keng joriy etilishi mehnati qurollari va qurol-yaroq ishlab chiqarishda haqiqiy burilish yasadi. Surxandaryo, Zarafshon va Qashqadaryo kabi tabiiy-geografik jihatdan qulay daryo havzalarida sug'orma dehqonchilik jadal rivojlandi. Daryo va tarmoqlardan chiqarilgan ibtidoiy kanallar, ariqlar hamda to'g'onlar hosildorlikni bir necha barobarga oshirishga imkon berdi. Donli ekinlar yetishtirish va chorvachilikning jadal o'sishi natijasida jamiyatda doimiy ravishda ortiqcha mahsulot to'plana boshladi. Ortiqcha mahsulotning paydo bo'lishi esa jamiyat tarkibida muhim ijtimoiy mehnat taqsimotini keltirib chiqardi. Ibtidoiy jamoa tuzumining dehqonchilik bilan shug'ullanuvchi a'zolaridan endilikda hunarmandlar qatlami mutlaq ajralib chiqdi. Dehqonchilik va hunarmandchilikning ajralishi, o'z navbatida, mahsulot ayirboshlash munosabatlarini ya'ni ichki savdoni vujudga keltirdi. Turli jamoalar o'rtasidagi savdo va iqtisodiy aloqalar kesishuvida joylashgan yirik aholi punktlari asta-sekin ma'muriy va madaniy markazlarga aylana boshladi. Shu bilan birga, moddiy boyliklarning ma'lum bir guruhlar qo'lida to'planishi ijtimoiy tabaqalanishga hamda ilk davlatchilik kurtaklariga zamin yaratdi. Bu jarayonlar fanda Baqtriya-Marg'iyona arxeologik majmuasi nomi bilan yuritiluvchi, O'rta Osiyo janubidagi poydevor sivilizatsiyasining shakllanishiga olib keldi. O'zbekiston va butun O'rta Osiyo hududida shahar tipidagi eng qadimgi aholi punkti, proto-shahar ya'ni dastlabki shahar sifatida Surxandaryo vohasining Sherobod tumanida, Sherobod daryo tarmog'i Bōstonsoy o'zanining chap sohilida joylashgan Jarg'oton yodgorligi tan olingan. Jarg'oton va unga qo'shni bo'lgan Sopollitepa yodgorligini o'rganish O'zbekiston arxeologiya fanining eng ulkan yutuqlaridan biri hisoblanadi. Akademik Ahmadali Asqarov va uning shogirdi, professor Toshpo'lat Shirinov boshchiligidagi O'zbekiston Fanlar akademiyasi Arxeologiya instituti ekspeditsiyasi tomonidan ko'p yillar davomida olib borilgan tadqiqotlar shuni ko'rsatdiki, Jarg'oton shunchaki ibtidoiy qishloq emas, balki maydoni 100 gektardan ziyod bo'lgan, murakkab va aniq loyihalashtirilgan shaharsozlik majmuasidir. Jarg'otonning kashf etilishi Yevroosiyo qit'asida ilk sivilizatsiya va urbanizatsiya faqat Mesopotamiya, Misr va Hind vodiysida emas, balki Markaziy Osiyoning ichki hududlarida ham mustaqil ravishda va bir vaqtning o'zida shakllanganini ilmiy jihatdan isbotlab berdi. Jarg'oton yodgorligi o'zining ko'lamliligi, me'moriy murakkabligi va funksional bo'linishi bilan sivilizatsiyaning barcha asosiy mezonlariga to'liq javob beradi.

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Jarg'oton proto-shahar majmuasi o'zining hududiy va funksional tuzilishiga ko'ra bir nechta mustaqil qismlardan iborat bo'lib, bu holat shaharda puxta o'ylangan me'morchilik va loyihalashtirish rejasi bo'lganini ko'rsatadi. Ark ya'ni hukmdor qarorgohi shaharning eng baland va sun'iy ravishda ko'tarilgan tepaligida joylashgan bo'lib, maydoni taxminan 3 gektarni tashkil etadi. Ark atrofi qalinligi 3-4 metrgacha yetadigan, xom g'isht va paxsadan urilgan mustahkam mudofaa devorlari hamda doira shaklidagi harbiy burjlar bilan o'ralgan. Ark ichida hukmdor va uning yaqinlari yashaydigan saroy inshootlari, ma'muriy xonalar va oziq-ovqat zaxiralari saqlanadigan omborxonalar joylashgan. Jarg'otonning eng noyob kashfiyotlaridan biri bu – shahar arkidan biroz narida joylashgan ulkan ibodatxona majmuasidir. Bu bino O'rta Osiyo va butun Sharq hududidagi eng qadimgi otashparastlik ibodatxonasi hisoblanadi. Ibodatxona atrofi baland va qalin devor bilan o'ralgan bo'lib, uning markazida muqaddas olav saqlanadigan va qurbonliklar keltiriladigan maxsus mehroblar, qadimgi qabilalar sig'ingan muqaddas suv va alov marosimlari o'tkaziladigan xonalar aniqlangan. Ibodatxonaning mavjudligi Jarg'otonda nafaqat dunyoviy, balki quvvatli diniy hokimiyat va mafkuraviy markaz shakllanib bo'lganidan dalolat beradi. Ommaviy aholi yashaydigan hududlar alohida mahallalarga bo'lingan. Turarjoy binolari katta bichimli xom g'ishtdan (55 x 29 x 9 cm) bir yoki bir necha xonali qilib qurilgan. Xonalar sahni va devori samonli loy bilan suvalgan. Ko'chalar tor, daha ibodatxonasiga boruvchi yo'lga shag'al yotqizilgan. Jarg'oton shaharsozligining eng muhim xususiyatlaridan biri — hunarmandchilik ustaxonalarining yashash hududlaridan mutlaq ajratilganidir. Yodgorlikning sharqiy va shimoliy chekkalarida kulolchilik xumdonlari (pechlari) va metall quyish ustaxonalari joylashtirilgan. Bu yechim shahar aholisini tutun va yong'in xavfidan saqlash kabi dastlabki ekologik va xavfsizlik qarashlari shakllanganini ko'rsatadi. Arxeologlar bu yerdan ikki kamerali, yuqori harorat beruvchi mukammal kulolchilik xumdonlarini topishgan. Jarg'otonda olib borilgan qazishmalar paytida topilgan moddiy-madaniyat namunalari ilk shahar aholisining yuksak madaniyati va iqtisodiy imkoniyatlaridan darak beradi. Jarg'oton sopol buyumlari o'zining nafisligi va sifatliiligi bilan ajralib turgan. Idishlar asosan kulolchilik charxida yasalgan, silliqlangan va geometrik naqshlar yoki angob ya'ni maxsus bo'yoq bilan bezatilgan. Shahar hunarmandchilik mahsulotlari ichki bozor hamda tashqi bozor uchun ham keng ko'lamda ishlab chiqarilgan. Masalan, kulolchilik mahsulotlarining uzoq Xitoy hududlarigacha kirib borganligi haqida guvohlik beruvchi ashyoviy dalillar ushbu qadimiy shahar madaniyatida mavjud. Jarg'oton shahri yonida joylashgan ulkan nekroponda ya'ni qabristonda 1500 ga yaqin qabrlar o'rganilgan. Qabrlardan topilgan ashyolarni qiyosiy tahlil qilish jamiyatdagi chuqur ijtimoiy va iqtisodiy tengsizlikni ochiq-oydin ko'rsatdi. Boshqa oddiy dehqon va hunarmandlar qabrlarida atigi 2-3 dona oddiy sopol idish topilgan bo'lsa, jamiyat zodagonlari va harbiy posbonlar qabrlaridan onlarcha nafis sopol idishlar, bronza ko'zgular, bezakli qurollar, oltin va kumush taqinchoqlar hamda maxsus qabilaviy muhrlar topilgan. Bu fakt Jarg'otonda ilk tabaqalashgan va sinfiy jamiyat hamda davlatchilik o'choqlari to'liq qaror topganini isbotlaydi. Miloddan avvalgi I ming yillikning boshlariga kelib (taxminan miloddan avvalgi IX-VI asrlar) O'zbekiston hududidagi sotsio-iqtisodiy va madaniy hayotda tub burilish yuz

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berdi. Bu davr tariximizda ilk temir davri va dastlabki davlatchilik hamda vacha urbanizatsiyasining qaror topish bosqichi sifatiga kiradi. Ushbu davrda temir ruda konlarining o'zlashtirilishi va temir mehnat qurollarining kashf etilishi xalq xo'jaligining barcha tarmoqlarida keskin o'zgarish hosil qildi. Bronza qurollariga nisbatan ancha mustahkam va arzon bo'lgan temir qurollar yordamida qadimgi dehqonlar yirik daryolar va ularning tarmoqlaridan uzunligi onlarcha kilometrga yetadigan sun'iy irrigatsiya kanallarini chiqara boshladilar. Zarafshon, Qashqadaryo, Surxandaryo va Amudaryo (Xorazm) vohalarida keng ko'lamli sug'orma dehqonchilik yerlarining o'zlashtirilishi atroq aholi sonining keskin ortishiga va zich joylashuviga olib geldi. Ilk temir davri shaharsozligining ikkinchi muhim omili — harbiy-strategik zarurat bo'ldi. Mintaqaning geografik joylashuvi atroq dehqonchilik vohalari va chorvador ko'chmanchi qabilalar ya'ni sak va massagetlar tutashgan chegaralarda joylashgani sababli, aholi va to'plangan moddiy boyliklarni tashqi hujumlardan himoya qilish bosh masalaga aylandi. Shu sababli, bu davrda vujudga kelgan shaharlar nafaqat hunarmandchilik va dehqonchilik markazi, balki qudratli harbiy mudofaa ob'yektlari sifatida loyihalashtirildi. Aynan shu davrda O'zbekistonning uchta yirik tarixiy-madaniy viloyatida — So'g'diyona (Afrosiyob), Naxshab (Yerg'o'rg'on) va Xorazmda (Qal'aligir) voqa poytaxtlari hamda ilk mudofaa qal'alari shakllandi. Zarafshon vohasining markaziy qismida, strategik va geografik jihatdan juda qulay bo'lgan tabiiy tepalikda joylashgan Afrosiyob yodgorligi (Qadimgi Samarqand) So'g'diyona davlatining poytaxti va eng yirik shaharsozlik markazi hisoblanadi. Arxeologik tadqiqotlar (V. Vyatkin, M. Masson, Ya. G'ulomov va Fransuz-O'zbek arxeologik ekspeditsiyasi) Afrosiyobga miloddan avvalgi VIII-VII asrlarda asos solinganini tasdiqlaydi. Afrosiyob shahri 200 gektarga yaqin maydonni egallagan bo'lib, shimoliy tomondan Siyob daryochasi va chuqur jar xandaglari bilan, boshqa tomonlardan esa ulkan paxsali mudofaa devorlari bilan muhofaza qilingan. Shahar joylashgan hududning o'zi tabiiy istehkom vazifasini o'tagan. Afrosiyobning eng qadimgi (Ahamoniylar davrigacha bo'lgan) mudofaa devorlari paxsadan urilgan bo'lib, qalinligi 6 metrdan 8 metrgacha yetgan. Devor ichida harbiylar va kamonchilar harakatlanishi uchun maxsus ichki yo'laklar va to'rtburchak shaklidagi otish darchalari bo'lgan. Keyinchalik ellinistik davrda ya'ni Makedoniyalik Aleksandr yurishlaridan so'ng devorlar to'rtburchak xom g'ishtlar bilan yanada mustahkamlanib, har 20-30 metrda doira va to'rtburchak shaklli mudofaa burjlari qurib chiqilgan. Afrosiyob 3 bosqichli tuzilishga ega bo'lgan. Shaharning eng baland shimoliy qismida Ark joylashgan bo'lib, u yerda hokim saroyi va harbiy garnizon joylashgan. Ark atrofida keng Shahriston va uning ortida Rabot (shahar atrofi) shakllangan. Zarafshon daryosidan chiqarilgan Darg'om kanali va shahar ichiga sopol quvurlar hamda ariqlar orqali oqib keluvchi Obirahmat suvi shahar aholisini ichimlik suvi bilan to'liq ta'minlagan. Qashqadaryo vohasida, hozirgi Qarshi shahri yaqinida joylashgan Yerg'o'rg'on yodgorligi qadimgi Naxshab viloyatining birinchi poytaxti va shaharsozlik madaniyatining yorqin namunasidir. Akademik R. Sulaymonov va Qashqadaryo arxeologik ekspeditsiyasi tomonidan o'rganilgan ushbu shahar miloddan avvalgi IX-VIII asrlarda shakllana boshlagan. Yerg'o'rg'onning o'ziga xosligi shundaki, u rivojlanish jarayonida ikki gator mudofaa devorlari bilan o'ralgan. Birinchi (ichki) devor

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mil. avv. VIII-VI asrlarga oid bo'lib, dastlabki shahar markazini va Arkni o'rab olgan. Shahar aholisi va hunarmandchilik darasi kengaygani sari, milodiy davr boshlarida maydoni 150 gektardan oshgan shaharni o'rab turuvchi ikkinchi (tashqi) ulkan devor barpo etilgan. Yerg'o'rg'on hududida o'tkazilgan qazishmalar natijasida shahar markazida joylashgan muazzam Hokim saroyi, shahar ma'badi ya'ni ibodatxona, zarbxona hamda alohida hunarmandlar mahallasining qoldiqlari topilgan. Shaharda metallurgiya, xususan, temir va bronzaga ishlov berish hamda zargarlik juda yuqori darajada rivojlangan. Yerg'o'rg'on janubiy O'zbekiston (Baqtriya) va Zarafshon vohasi (So'gd) o'rtasidagi asosiy savdo yo'lida joylashgan. Shaharda o'ziga xos tangalarning zarb etilishi va shahar ibodatxonalarida diniy marosimlarning ommaviy o'tkazilishi Yerg'o'rg'onning nafaqat iqtisodiy, balki yirik siyosiy va g'oyaviy poytaxt bo'lganini tasdiqlaydi. Xorazm vohasining qadimgi o'zanida joylashgan va miloddan avvalgi VI-V asrlarga, Ahamoniylar va ilk mustaqil Xorazm davlatchiligi davriga oid Qal'aligir 1 yodgorligi Xorazm shaharsozlik maktabining eng qadimgi va mukammal namunasi. U taniqli arxeologlar S. P. Tolstov va E. Ye. Nerazik boshchiligidagi Xorazm arxeologiya-etnografiya ekspeditsiyasi tomonidan chuqur o'rganilgan. Qal'aligir shaharsozlik arxitekturasida o'zining qat'iy geometrik loyihasiga ko'ra ajralib turadi. Shahar to'g'ri to'rtburchak shaklda, maydoni 1000x700 metr qilingan holda barpo etilgan. Uning burchaklari dunyo tomonlariga aniq mo'ljallab qurilgan. Shahar devorlarining to'g'riligi va geometrik uyg'unligi Xorazmda matematik va muhandislik bilimlarining juda barvaqt rivojlanganini ko'rsatadi. Qal'aligir devorlari qalinligi 5 metrdan oshadigan xom g'isht va paxsadan ko'tarilgan bo'lib, devor ichi ikki qavatli oqma harbiy galereyalar va yuzlab otish darchalariga ega bo'lgan. Devor tashqarisida chuqur suv to'la xandaqlar qazilgan. Shahar markazida joylashgan muazzam saroy majmuasi bir necha o'nlab ustunli zal va xonalardan iborat bo'lib, u mintaqadagi davlat boshqaruvi va harbiy-ma'muriy qarorgoh hisoblangan. Qal'aligir va unga zamondosh bo'lgan Xorazm shaharlari Amudaryoning qadimgi Oqchadaryo tarmog'idan chiqarilgan ulkan kanallar atrofida zanjir kabi joylashgan. Bu shaharlar bir tomondan dehqonchilik vohasini sug'orsa, ikkinchi tomondan Qizilqum sahrosidan keladigan ko'chmandchi qabilalar hujumini qaytaruvchi qalqon vazifasini o'tagan. Miloddan avvalgi II asrdan milodiy IV asrgacha bo'lgan davr O'zbekiston va butun Markaziy Osiyo shaharsozligi tarixida yuksak antik davr va urbanizatsiyaning haqiqiy "oltin davri" hisoblanadi. Bu davrda Yevroosiyo qit'asida to'rtta qudratli imperiya — Rim, Parfiya, Xitoy va Kushon imperiyasi faoliyat ko'rsatib, ular o'rtasida doimiy va tizimli xalqaro diplomatik hamda savdo aloqalari qaror topdi. Ushbu davrda Buyuk Ipak yo'lining asosiy tranzit tarmoqlari O'zbekiston hududi: Baqtriya, So'gd, Xorazm va Choch orqali o'tdi. Bu geografik omil shaharsozlik rivojiga mislsiz va sifat jihatidan yangi turtki berdi. Shaharlar nafaqat hududiy jihatdan kengaydi, balki ularda hunarmandlar, xalqaro savdogarlar, chet ellik elchilar, din pesvolari hamda olim va san'atkorlardan iborat turli-tuman va zich aholi qatlami shakllandi. Kushon va So'gd hukmdorlari tomonidan tilla, kumush va mis tangalarning ommaviy zarb etilishi bozor iqtisodiyoti hamda xalqaro savdo amaliyotini shaharlarning bosh rivojlantiruvchi omiliga aylantirdi. Shaharsozlikda markazlashgan rejalashtirish, tosh va g'ishtdan yotqizilgan

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ko'chalar, sopol quvurlar orqali toza suv olib kirish hamda oqova suvlarni chiqarib tashlash tizimlari mukammallashdi. O'zbekiston shaharlari mahalliy e'tiqodlar, yunon-ellinistik arxitektura va san'at, Hindiston madaniyati hamda ko'chmanchi qabilalar an'alarini o'zida sintez qilgan jahoniy madaniyat markazlariga aylandi. Surxondaryo vohasida Shourchi tumanida joylashgan Dalvarzintepa yodgorligi Kushon imperiyasi davri shaharsozligi, arxitekturasi va san'atining eng yorqin, jahonshumul namunasi. Akademik E. V. Rtveladze va G. A. Pugachenkova boshchiligidagi O'zbekiston san'atshunoslik ekspeditsiyasi tomonidan bir necha o'n yillar davomida o'rganilgan ushbu shahar miloddan avvalgi I asr — milodiy III asrlarda gullab yashnagan. Dalvarzintepa to'rtburchak shaklda barpo etilgan bo'lib, maydoni 40 gektardan ortiq hududni egallaydi. Shahar qalin va baland paxsa xom g'ishtdan ko'tarilgan, ichida otish darchalari bo'lgan mudofaa devorlari hamda xandaqlar bilan muhofaza qilingan. Shahar markazidan o'tgan bosh ko'cha uni teng ikki qismga bo'lgan, ko'chalardan perpendikulyar ravishda tushgan tor ko'chalar esa alohida mavze va mahallalarni shakllantirgan. Dalvarzintepada zodagon va boy savdogarlarning hashamatli hovli-saroylari qazib o'rganilgan. Bu uylarda o'nlab xonalar, mehmonxonalar, ustunli ayvonlar aniqlangan. 1972-yilda Dalvarzintepadagi zodagonlar uyidan topilgan 36 kg dan ortiq oltin buyumlar (zargarlik buyumlari, oltin quymalar, bilaguzuklar, uzuklar va qimmatbaho toshlar) antik davr O'zbekiston shahar aholisining mislsiz boyligi va xalqaro savdo doiralarida tutgan o'rnini tasdiqlaydi. Oltin quymalardagi qadimgi hind yozuvlari shahar Hindiston va Uzoq Sharq bilan me'yoriy iqtisodiy aloqalar o'rnatganini ko'rsatadi. Dalvarzintepa hududida zardashtiylik ibodatxonalari bilan bir qatorda muazzam Buddizm ibodatxonasi va haykaltaroshlik ustaxonasi topilgan. Bu yerdan topilgan, loy va gipsdan ishlangan ganch haykallar ellinistik plastika san'ati va mahalliy sharqona badiiy uslubning aralashuvidan dalolat beradi.

Xulosa qilib aytganda, shaharsozlik madaniyati yurtimizga tashqaridan kirib kelmagan, balki bronza davridan boshlab mahalliy dehqonchilik va hunarmandchilik evolyutsiyasi mahsuli sifatida shakllangan. Jarqo'tondagi ilk ibodatxona va hunarmandlar mahallalari, Afrosiyob va Qal'aliqirdagi 6–8 metrlik mudofaa devorlari hamda Dalvarzintepadagi sopol quvurli suv tarmoqlari va 36 kg lik oltin xazina ajdodlarimizning yuksak muhandislik, harbiy va iqtisodiy salohiyatini ko'rsatadi. Ushbu shahar-davlatlar nafaqat mintaqamizning sotsio-iqtisodiy va madaniy poydevorini belgilab bergan, balki Yevroosiyo chorrahasidagi betakror sivilizatsiya o'chog'iga aylangan. Sharq va G'arb tamaddunlarini bog'lagan bu ko'hna markazlar asrlar davomida o'zining strategik va madaniy mavqeyini saqlab qola olgan. Qadimgi shaharsozlik an'alarimiz xalqimizning davlatchilik tarixi nechog'liq teran va boy ildizlarga ega ekanligidan yorqin dalolat beradi. Xulosa qilib aytganda, ushbu qadimgi shaharlar bugungi milliy davlatchiligimiz va shaharsozlik an'alarimizning mustahkam poydevori hisoblanadi.

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**YANGI MIKROELEMENTLI O'G'ITLARNI QO'LLASH ME'YOR VA
MUDDATLARINI G'O'ZANING RIVOJLANISH DAVRLARIGA TA'SIRI**

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Annotatsiya. Paxta hosildorligini oshirishda fiziologik faol moddalar va suyuq azotli o'g'itlar bilan g'o'zani bargidan oziqlantirish agrotexnologiyasidan foydalanish samarali usul hisoblanadi. Ushbu agrotexnologiyalar g'o'zani yaxshi o'sishiga, hosil elementlarini ko'proq shakllanishiga va paxta hosili salmog'i hamda sifatini oshirishga qaratilgan. Respublikamiz qishloq xo'jaligining paxtachilik sohasida ham fiziologik faol moddalardan foydalanish hamda o'simlikni bargidan suyuq azotli o'g'itlar bilan oziqlantirishning samarali usullarini ishlab chiqish dolzarb yo'nalish hisoblanadi.

Kalit so'z: Paxtachilik, mikroelement, g'o'za, fiziologik faol moddalar, shonalash, gullash, fenologik kuzatuv, chinbarg, o'simlik bo'yi, gul, shona.

KIRISH

Ma'lumki, paxtachilikda har qanday tuproq iqlim sharoitida ham turli tashqi omillarga chidamli, kasallik va hasharotlarga bardoshli navlarni yaratish, ularni o'ziga xos parvarishlash agrotexnologiyasini ishlab chiqish hamda ertagi, yuqori va sifatli hosil olish dolzarb hisoblanadi. G'o'za agrotexnikasi, tuproqqa ishlov berish, almashlab ekish tizimini joriy etish, qator oralariga ishlov berish, sug'orishda dehqonchilik qonuniyatlariga asoslanib ish yuritiladi. Tuproq unumdorligini saqlash, oshirish, g'o'zani ilmiy asosda mineral oziqlantirishda tuproqshunoslik va agrokimyo qonuniyatlaridan foydalanilgan holda ish yuritiladi. Paxtachilikdagi eng asosiy muammolar quyidagilardan iborat: ekologik muammo va atrof muxitni muhofaza qilish, tuproq unumdorligi, shamol va suv eroziyasi, mehnat unumdorligi va sohadagi barcha agrotexnik tadbirlarning foydali ish koeffitsiyenti; paxta hosildorligini oshirish; mahsulot sifatini yaxshilash.

Bizning sharoitimizda g'o'zadan 1 tonna chigitli paxta yetishtirish uchun agrotexnika nuqtai nazaridan muhim bo'lgan oziq elementlardan taxminan: 50 kg azot, 10 kg fosfor, 50 kg kaliy bo'lishi kerak. Boshqa mikro elementlardan: o'rta hisobda 50 kg kalsiy, 10 kg oltingugurt, 10 kg magniy va shuncha natriy, 2 kg gacha temir, 0,2 kg gacha bor, 50 g dan kamroq mis va 1,5 kg atrofida xlor bo'lishi kerak.



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Chigit unib chiqish vaqtida tuproqda azot ko'p bo'lsa, maysalarning yer betiga chiqishi sekinlashib, ildiz sistemasining rivojlanishi zaiflashadi. Mana shu holatda tuproqda fosforning bo'lishi azotning kuchli ta'siri (konsentratsiyasi)ni qaytaradi. Shonalash davriga qadar, ayniqsa bu davrning dastlabki paytlarida, tuproqda azotning keragidan ortiqcha bo'lishi o'simlikda hosil shoxning yuqoridan chiqishiga sabab bo'ladi, bundan tashqari g'o'za rivojlanishidagi asosiy fazalarning boshlanishi kechikadi.

Tadqiqot uslublari. O'simliklarning o'sish va rivojlanishi uchun ko'p miqdorda o'zlashtiriladigan asosiy o'g'itlardan tashqari kam iste'mol qiladigan oziq moddalar ham kerak bo'ladi. Ular mikroelementlar deb ataladi. Hozirgi paytda o'simliklarning me'yorda rivojlanishi uchun bor, rux, mis, molibden, marganes, kabi mikroo'g'itlar zarurligi aniqlangan. O'simliklarning oziqlanishida bu moddalarning yetishmasligi natijasida modda almashinuvi buziladi, hosil elementlari kam paydo bo'ladi va ma'lum miqdorda hosil to'kilib ketadi. Bu xol hosilni kamayib ketishiga va pasayishiga sabab bo'ladi.

Barglarga o'g'itlarni purkash tejamkor va samarali bo'lib, hosildorlikni sezilarli darajada oshiradi. Bu kech o'sish davrida o'simliklar tarkibidagi mineral moddalarini kamayishini hal qilishda va tabiiy ofatlardan so'ng ekinlarning tez o'sishini tiklashda muhim rol o'ynaydi. Barglarga o'g'itning purkash konsentratsiyasini ilmiy jihatdan aniqlash juda muhimdir. Agar konsentratsiya juda yuqori bo'lsa, u o'simlikning shikastlanishiga olib keladi va asosiy elementlarini zararlanishiga olib kelishi mumkin.

Dala tajribalari Paxta seleksiyasi, urug'chiligi va yetishtirish agrotexnologiyalar ilmiy-tadqiqot instituti Farg'ona ilmiy-tajriba stansiyasida 2025-yilda bajarilgan bo'lib, tajribada Avangard (start), Avangard (azot+mikro) mikro elementli suyuq o'g'itlarni andoza variantlari 10 ta variantdan iborat bo'lib, 3 yarusda, 3 qaytariqda joylashtirilib, kichik maydonchalarda S-8296 g'o'za navi ekildi.

Bunda dala tajribalari uchun "SWISSAGRO» MCHKda ishlab chiqirilayotgan mikro va makroelementlar bilan boyitilgan murakkab mikroelementli o'g'itlardan "Avangard-star" va "Avangard azot+mikro" nomli yangi bioo'g'itlardan foydalandik.

Avangard-Start, RK (Azot-100g/l, Fosfor-70g/l, Kaliy-20g/l, Kalsiy-10g/l, Temir-10g/l, Marganes-5g/l, Bor-5g/l, Rux-5g/l, Kobalt-0,1g/l, Molibden-0,5g/l, Mis-2g/l,) Ekinlarini unib chiqishini 8-10% ga oshiradi, rivojlanishini tezlashtiradi, noqulay ob havo sharoiti va zararli organizmlarga chidamliligini hamda hosildorlikni oshiradi.

Avangard Azot+Mikro, RK (N-300g/l, SO₃-26 g/l, MgO-10g/l, B-0,5g/l, Fe-0,3g/l, Mn-4g/l, Cu-1g/l, Zn-0,3g/l, Mo-0,1g/l, Co-0,01g/l) Ekinlarini unib chiqishini 8-10% ga oshiradi, rivojlanishini tezlashtiradi, noqulay ob-havo sharoiti va zararli organizmlarga chidamliligini hamda hosildorlikni oshiradi.

Tadqiqotlarga ko'ra, mineral o'g'itlar N-200, P₂O₅ -140, K₂O-100 kg/ga meyorlarda tuproq ostidan berilgan holda qo'shimcha barg orqali oziqlantirishda mikroelementli o'g'itlarni qo'llash muddat va me'yorlarining;

- o'simlikning o'sishi va rivojlanishiga;
- hosil elementlarini, shakillanishi va to'kilishiga ta'siri aniqlandi, buni quyidagi jadvallar asosida taxlil qilindi.

1-jadval

G'o'zaning rivojlanish davrlariga Avangard start va Avangard azot-mikro mikroelementli o'g'itlarini ta'siri. S-8296 navi, o'rtacha 2024-2025 yillar

№	Tajriba variantlari	Chinbarg, shonalash va gullash sepish me'yori l/g	Unib chiqish	1-chin barg	5-6 chin barg	Shonalash	Gullash	Pishish
1	Nazorat	-	12	20	41	59	75	125
2	Andoza(Universal) 3 marta	1,0+1,5+1,5	11	19	40	56	72	124
3	Avangard (start) 1 marta	1,0	10	19	40	57	71	122
4	Avangard (start) 2 marta	1,0+2,0	10	18	39	54	72	120
5	Avangard (start) 3 marta	1,0+2,0+2,0	9	17	38	52	70	119
6	Avangard (start) 3 marta dozasi ko'proq	1,5+2,5+3,0	10	18	39	56	71	124
7	Avangard azot+mikro 1 marta	1,0	10	19	39	57	71	125
8	Avangard azot+mikro 2 marta	1,0+2,0	9	18	40	55	72	126
9	Avangard azot+mikro 3 marta	1,0+2,0+2,0	8	18	38	53	70	120
10	Avangard azot+mikro 3 marta ko'proq	1,5+2,5+3,0	10	18	39	56	71	126

Birinchii tajriba o'simlikning chinbarg chiqarish davrida 24.05.2025-kuni qo'l apparati aftomaks yordamida qo'yildi. G'o'zaning bargidan mikroelementli o'g'itlarni ishchi eritmasini sepish (2-tajriba) 20.06.2025-kuni hamda (3-tajriba) 05.07.2025-kuni amalga oshirildi. Tajriba variantlarida belgilangan tartibda me'yorlarda gektariga 500 litr suv hisobida ishchi eritma tayyorlanib sepildi.

Ilmiy ishning natijasi. Tajriba natijalariga ko'ra, nazorat, ya'ni ishlov berilmagan variantda g'o'zaning rivojlanish jarayoni nisbatan sekin kechgan. Unib chiqish 12 kunda, 1-chin barg 20 kunda, 5–6 chin barg bosqichi 41 kunda, shonalash 59 kunda, gullash 75 kunda va pishish 125 kunda kuzatilgan. Bu ko'rsatkichlar boshqa variantlarni baholash uchun asos bo'lib xizmat qiladi. Andoza sifatida olingan Universal 3 marta qo'llanilgan variantda barcha



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rivojlanish bosqichlari nazoratga nisbatan 1–3 kunga tezlashgan. Shonalash 56 kunda, gullash 72 kunda va pishish 124 kunda sodir bo‘lgan. Bu esa mikroelementlarning o‘simlik rivojlanishiga ijobiy ta‘siri borligini ko‘rsatadi. Avangard start o‘g‘iti qo‘llanilgan variantlarda rivojlanish yanada tezlashgan. 1 marta qo‘llanganda unib chiqish 10 kunda, 3 marta qo‘llanganda esa 9 kunda kuzatilgan. 3 marta qo‘llangan variantda 5–6 chin barg bosqichi 38 kunda, shonalash 52 kunda va gullash 70 kunda kuzatilib, bu nazoratga nisbatan ancha erta sodir bo‘lgan. Pishish ham 119 kunda yakunlangan bo‘lib, bu eng tez pishgan variantlardan biri hisoblanadi. Avangard start o‘g‘itining dozasi oshirilgan variantida rivojlanish biroz sekinlashgani kuzatilgan. Masalan, shonalash 56 kunda, gullash 71 kunda va pishish 124 kunda sodir bo‘lgan.

Avangard azot+mikro variantlarida ham sezilarli ijobiy natijalar qayd etilgan. Ayniqsa, 3 marta qo‘llangan variantda unib chiqish eng tez 8 kunda kuzatilgan. Shuningdek, 5–6 chin barg bosqichi 38 kunda, shonalash 53 kunda va gullash 70 kunda sodir bo‘lgan. Pishish 120 kunda yakunlangan bo‘lib, bu ham nazoratga nisbatan tezroq hisoblanadi. Avangard azot+mikro o‘g‘itining yuqori dozada qo‘llanilgan variantida rivojlanish biroz cho‘zilgan. Masalan, pishish 126 kunga yetgan, bu esa boshqa variantlarga nisbatan kechroq hisoblanadi. Demak, bu holat ham optimal me‘yorni saqlash zarurligini ko‘rsatadi.

Xulosa. Tajriba natijalari mikroelementli o‘g‘itlarni optimal me‘yorda qo‘llash g‘o‘zaning rivojlanish bosqichlarini tezlashtirishini ko‘rsatdi. Eng samarali variantlar Avangard start 3 marta va Avangard azot+mikro 3 marta bo‘lib, ushbu variantlarda unib chiqish, shonalash va gullash bosqichlari nazoratga nisbatan erta kuzatildi. Yuqori dozali variantlarda esa rivojlanishning biroz cho‘zilishi optimal me‘yorni saqlash zarurligini ko‘rsatdi.

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THE TERMINOLOGICAL SIGNIFICANCE OF LATIN IN MEDICINE

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Annotation: *Latin has played a significant role in the development and standardization of medical terminology. Although it is no longer the dominant language of international scientific communication, Latin remains an important source of anatomical, pharmaceutical, and clinical terminology. This article examines the historical, linguistic, educational, and terminological significance of Latin in medicine. Particular attention is given to the role of Latin in anatomical nomenclature, terminology formation, international professional communication, and medical education. The study also considers the interaction between Latin, Greek, and modern languages, particularly English, in contemporary medical terminology. The findings indicate that Latin continues to provide a stable terminological foundation that promotes precision, consistency, and international understanding in medical communication.*

Keywords: *Latin language, medical terminology, anatomical nomenclature, pharmaceutical terminology, medical discourse, terminology formation, professional communication, medical education, linguistic standardization, Greco-Latin terminology.*

Medicine is one of the oldest and most systematically developed fields of human knowledge. Throughout the history of medical science, the description of the human body, physiological processes, diseases, pathological conditions, diagnostic procedures, therapeutic methods, and pharmaceutical substances has required a precise and stable system of professional terminology. The development of such terminology has been closely associated with the historical influence of Greek and Latin. While Ancient Greek contributed substantially to the conceptual and lexical foundations of medical language, Latin gradually became one of the principal languages through which medical knowledge was recorded, transmitted, systematized, and taught. As a result, Latin has acquired a distinctive terminological significance that remains visible in contemporary anatomical, pharmaceutical, and clinical vocabulary.

The role of Latin in medicine cannot be understood merely as a historical phenomenon. Although Latin is no longer the principal language of international scientific communication, its lexical and structural elements continue to function in numerous areas of medical terminology. Anatomical nomenclature provides perhaps the clearest example. Terms referring to organs, tissues, anatomical structures, and spatial relationships have traditionally been formulated according to Latin-based conventions. The development of internationally standardized anatomical nomenclature has further strengthened the position of Latin as a common terminological resource. The publication of *Basiliensia Nomina Anatomica* in 1895 represented an important stage in the international standardization of anatomical



terminology, while later nomenclatural developments culminated in *Terminologia Anatomica*, published in 1998 as a major international reference system for anatomical names.

The historical development of medical terminology demonstrates that Latin became particularly influential through its interaction with Greek medical knowledge. Ancient Greek medicine produced a considerable number of concepts and terms that subsequently entered Latin scientific discourse. During the medieval period, Greek and Arabic medical works were translated into Latin and circulated widely within European scholarly communities. Translation movements, including those associated with medieval centers of learning such as Toledo, facilitated the transfer of medical knowledge from Greek and Arabic into Latin. Consequently, a significant number of historical medical and anatomical terms survived through Latin transmission and eventually became part of modern medical terminology.

The Renaissance marked another important stage in the development of Latin medical terminology. The expansion of anatomical research and the emergence of systematic empirical approaches to the human body created a growing need for precise names for anatomical structures. Medical and anatomical works were frequently written in Latin, which functioned as an important language of European scholarship. However, the rapid growth of anatomical knowledge also produced terminological variation. Different scholars sometimes used different names for the same structure, creating ambiguity and inconsistency. This historical problem contributed to the subsequent development of organized international nomenclatural systems.

One of the important linguistic characteristics of Latin medical terminology is its structural and morphological regularity. Latin provides systematic patterns for combining nouns, adjectives, prefixes, suffixes, and other morphological elements. In anatomical terminology, for example, nouns and adjectives are grammatically related through case, number, and gender agreement. Such grammatical relationships allow complex anatomical concepts to be expressed in relatively compact forms. For medical students, understanding these structures can therefore provide more than memorization skills: it can help them identify the semantic components of unfamiliar terms and interpret their meanings.

The terminological productivity of Latin is also related to the use of Greek and Latin morphemes in the creation of specialized vocabulary. Contemporary medical terminology contains numerous elements derived from classical languages. Components such as *cardio-*, *neuro-*, *gastro-*, *hepato-*, and *nephro-* are widely used in medical terminology. Although many of these elements have Greek origins, they have become integrated into international medical vocabulary through the historical development of Greco-Latin scientific language. Their continued use demonstrates that classical languages remain productive resources for constructing and interpreting specialized terminology.

Another important characteristic of Latin medical terminology is its international dimension. Medical professionals work in multilingual environments, and scientific knowledge is increasingly exchanged across national and linguistic boundaries. A common terminological basis can facilitate communication between specialists who speak different



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native languages. Latin-derived terms often function as recognizable professional units across national medical systems, even when their pronunciation, spelling, or grammatical adaptation differs from one language to another. Consequently, Latin contributes to the international character of medical terminology.

Anatomical terminology particularly demonstrates this function. Internationally standardized anatomical terms provide physicians, anatomists, researchers, and medical educators with a shared nomenclatural framework. Such standardization is intended to reduce ambiguity and facilitate accurate communication. The importance of this function becomes particularly evident in medical education, scientific publications, anatomical atlases, surgical descriptions, and international research. A standardized name for an anatomical structure can make professional communication more precise and reduce the possibility of misunderstanding.

At the same time, the contemporary status of Latin in medicine is complex. English has become the dominant language of international scientific communication. Most major medical journals, international conferences, biomedical databases, and contemporary research publications rely heavily on English. As a result, English increasingly functions as the principal medium for communicating new medical knowledge. However, the growing role of English does not eliminate the terminological significance of Latin. Instead, the two languages perform different but complementary functions. English serves primarily as a medium of scientific communication, whereas Latin continues to provide important lexical and nomenclatural resources, particularly in anatomy, pharmacy, and certain areas of clinical terminology.

The pharmaceutical field represents another important area in which Latin has historically played a significant role. Latin was traditionally used in prescriptions and pharmaceutical terminology, and a number of pharmaceutical conventions developed within the Latin linguistic framework. Although prescription practices have changed substantially in modern healthcare systems, Latin-derived terminology remains visible in pharmaceutical nomenclature and professional vocabulary. This historical continuity demonstrates that the influence of Latin extends beyond anatomy and forms part of the broader linguistic heritage of medical science.

The educational dimension of Latin medical terminology is equally significant. Medical students in many educational systems encounter Latin terminology during their study of anatomy, histology, clinical disciplines, and pharmacy. Knowledge of basic Latin morphology and terminology can help students understand complex professional vocabulary. Instead of treating each medical term as an isolated lexical item, students can analyze its components and establish relationships between related terms. Such an approach may contribute to the development of terminological competence and facilitate the acquisition of specialized medical vocabulary.

For multilingual educational contexts, the study of Latin terminology becomes even more significant. Students may encounter medical terms through Uzbek, Russian, English, and Latin simultaneously. Each language can provide a different lexical form of the same

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professional concept. Understanding the Latin origin of terminology can therefore help students recognize relationships between apparently different terms. It may also assist translators and medical educators in maintaining terminological consistency when specialized concepts are transferred between languages.

The relationship between Latin and contemporary medical terminology also raises important questions concerning linguistic adaptation. Latin terms do not necessarily remain unchanged when they enter modern languages. They may undergo phonological adaptation, morphological modification, semantic specialization, or orthographic adjustment. Nevertheless, the underlying Latin element may remain recognizable. This process illustrates how historical terminology can survive within changing linguistic environments.

Another significant issue concerns the standardization and revision of anatomical terminology. Medical science is continuously developing, and new anatomical knowledge, imaging technologies, surgical techniques, and interdisciplinary research may require modifications to existing nomenclature. Consequently, anatomical terminology cannot be regarded as completely static. International terminology systems are periodically reviewed in order to improve clarity, consistency, and practical usability. The development of newer digital resources has also created opportunities for accessing and organizing anatomical terminology more efficiently.

Digitalization has introduced a new dimension to the study and application of medical terminology. Electronic anatomical atlases, medical databases, terminology repositories, and digital educational platforms increasingly provide access to standardized terminology. Digital tools can connect Latin terms with English equivalents, anatomical descriptions, illustrations, and related concepts. Such resources demonstrate that Latin terminology is not confined to traditional textbooks but continues to participate in contemporary digital medical education and scientific communication.

Despite these advantages, medical terminology continues to face several challenges. One of them is terminological variation. Different textbooks, countries, professional communities, and historical traditions may preserve alternative terms for the same anatomical or clinical concept. Another challenge is the coexistence of traditional Latin terms with modern English terminology. Medical students may therefore need to navigate several naming systems simultaneously. The existence of synonyms, abbreviated forms, borrowed expressions, and hybrid terminology can complicate the process of terminology acquisition.

These challenges make the systematic study of Latin medical terminology particularly relevant. Understanding the historical, linguistic, and functional dimensions of Latin can help explain why particular medical terms have survived and how they continue to operate within modern professional discourse. It can also contribute to the development of more effective teaching strategies for medical terminology.

From a linguistic perspective, medical terminology provides a valuable field for studying the relationship between language, professional knowledge, and social institutions. Specialized vocabulary is not simply a collection of technical words. It reflects the

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development of scientific disciplines, professional communities, educational practices, and international standards. Latin medical terminology is especially significant in this regard because it represents the intersection of historical linguistic heritage and contemporary professional communication.

The relevance of this issue is particularly evident in countries where medical education operates in multilingual environments. In Uzbekistan, for example, medical terminology may involve interaction between Uzbek, Russian, English, Latin, and Greek-derived vocabulary. Future medical professionals need to understand not only the meaning of individual terms but also their linguistic origins, structural patterns, and equivalents in different languages. The systematic study of Latin terminology can therefore contribute to the development of multilingual professional competence.

The present study focuses on the terminological significance of Latin in medicine, with particular attention to its historical development, structural characteristics, international function, educational role, and continuing relevance in contemporary medical discourse. The study considers Latin not as a completely independent modern language of medicine, but as a foundational terminological resource whose influence continues to shape professional vocabulary.

The significance of this research lies in demonstrating that the contemporary relevance of Latin should not be evaluated solely according to the frequency with which Latin is used as an independent communicative language. Its importance is more appropriately understood through its contribution to terminology, nomenclature, professional education, and international standardization. From this perspective, Latin remains an essential component of the linguistic infrastructure of medicine.

Thus, the study of Latin medical terminology provides an opportunity to examine the interaction between linguistic tradition and scientific modernization. Although the dominant language of contemporary medical research is increasingly English, Latin continues to function as a stable source of terminology and nomenclature. Its historical continuity, morphological structure, international recognizability, and educational value make it an important subject of linguistic and terminological research. The analysis of these characteristics can contribute to a deeper understanding of how professional medical vocabulary is formed, standardized, transmitted, and maintained across languages and generations.

The analysis of the terminological significance of Latin in medicine demonstrates that the role of Latin extends far beyond its historical function as a language of scholarship. Latin has contributed substantially to the formation, systematization, standardization, and internationalization of medical terminology. Although it no longer functions as the dominant language of scientific communication, its lexical and morphological elements remain deeply embedded in contemporary medical vocabulary. Anatomical nomenclature, pharmaceutical terminology, and numerous clinical terms continue to demonstrate the long-lasting influence of Latin and the broader Greco-Latin linguistic tradition.



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One of the principal conclusions of the study is that the significance of Latin in medicine is closely connected with historical continuity. Medical terminology did not emerge as a fully developed system at a particular moment. It evolved through centuries of scientific development and through interaction between different linguistic and intellectual traditions. Ancient Greek medicine provided many conceptual and lexical foundations, while Latin became an important medium through which medical knowledge was transmitted and systematized in Europe. The translation of Greek and Arabic scientific works into Latin further strengthened this process and contributed to the establishment of a common scholarly vocabulary.

The historical development of anatomical nomenclature provides particularly strong evidence of the continuing importance of Latin. The emergence of international anatomical nomenclatures was motivated by the need to reduce terminological variation and establish clearer professional communication. The publication of *Basiliensia Nomina Anatomica* in 1895 represented an important stage in this process, followed by subsequent revisions and the development of *Terminologia Anatomica*. These developments demonstrate that Latin-based nomenclature has not merely survived as a historical tradition; it has also been incorporated into systematic efforts to establish international standards.

The standardization of anatomical terminology has important practical implications. Medical professionals need to identify anatomical structures accurately and communicate information without ambiguity. In education, surgery, clinical practice, scientific research, and medical publishing, terminological inconsistency can create difficulties in interpretation. International nomenclature therefore serves an important communicative function. Latin terminology contributes to this function by providing a relatively stable lexical foundation that can be recognized and adapted across different national languages.

The linguistic structure of Latin is another factor contributing to its terminological significance. Latin medical terms frequently rely on systematic relationships between nouns, adjectives, prefixes, suffixes, and other morphological elements. These structural patterns allow complex medical concepts to be expressed precisely. For students of medicine, knowledge of such patterns can facilitate the interpretation of unfamiliar terms. Instead of memorizing terminology as isolated vocabulary, students can analyze the components of a term and infer aspects of its meaning.

The study also demonstrates that Latin medical terminology is closely connected with Greek-derived vocabulary. A substantial part of modern medical terminology contains Greek roots that entered international scientific usage through the historical development of Greco-Latin terminology. Elements such as *cardio-*, *neuro-*, *gastro-*, *hepato-*, and *nephro-* illustrate the continuing productivity of classical linguistic resources. This interaction between Greek lexical origins and Latin-based nomenclatural traditions demonstrates the complex historical structure of medical vocabulary.

Another conclusion concerns the international character of Latin medical terminology. Medicine is a highly internationalized field in which researchers, physicians, educators, and students regularly interact across linguistic and national boundaries. A shared terminological

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foundation can facilitate professional communication. Latin-derived terms may appear in different languages in adapted forms, but their common origins often remain identifiable. This feature makes classical terminology an important component of the international vocabulary of medicine.

At the same time, the study confirms that the position of Latin should be considered in relation to the growing international role of English. Contemporary medical research is increasingly conducted and communicated in English. Scientific articles, international conferences, biomedical databases, and digital resources rely extensively on English. Consequently, English currently performs many functions that Latin historically performed as a language of international scholarship. Nevertheless, English has not eliminated the terminological contribution of Latin. Instead, the two languages occupy different functional positions within contemporary medical communication.

English primarily functions as a medium for communicating scientific information, while Latin continues to provide terminology and nomenclature in particular professional domains. This distinction is important because it prevents the role of Latin from being evaluated solely through its frequency as a language of communication. Its continuing significance is better understood through its terminological function. Latin does not need to serve as the primary language of medical research in order to remain relevant to medical terminology.

The pharmaceutical field provides another example of this continuing relevance. Historically, Latin was extensively used in prescriptions and pharmaceutical terminology. Although modern prescribing practices have undergone considerable changes, Latin-derived forms and conventions continue to influence pharmaceutical vocabulary. The historical connection between Latin and pharmacy illustrates the broader continuity of classical terminology within professional medical language.

The educational implications of these findings are particularly important. The acquisition of medical terminology is a fundamental component of professional medical education. Students must learn a large number of specialized terms and understand their meanings, structures, and relationships. Instruction in medical Latin can support this process by providing students with knowledge of terminology formation and word structure. Understanding prefixes, suffixes, roots, grammatical agreement, and basic morphological patterns can make the acquisition of medical vocabulary more systematic.

For multilingual students, this function becomes even more relevant. Medical education may involve several languages simultaneously, particularly Uzbek, Russian, English, and Latin. The same anatomical or clinical concept may have different forms in each language. Knowledge of Latin terminology can help students identify connections among these forms and develop more consistent professional vocabulary. It can also support the translation of medical texts and contribute to greater terminological precision.

The findings further indicate that Latin terminology should not be viewed as a completely static system. Medical science continues to develop, and terminology must respond to new knowledge, technologies, and professional practices. Anatomical

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nomenclatures have therefore undergone periodic revisions. New terms may be introduced, existing terms may be clarified, and alternative forms may be reconsidered. This process demonstrates that Latin-based terminology remains capable of functioning within changing scientific environments.

Digitalization has created additional opportunities for the preservation and development of Latin medical terminology. Electronic anatomical atlases, online terminology databases, digital dictionaries, and interactive educational platforms make standardized terminology more accessible. Digital resources can connect Latin terminology with English equivalents, anatomical descriptions, images, and other forms of scientific information. Consequently, the role of Latin is increasingly being integrated into modern technological approaches to medical education.

Nevertheless, several challenges remain. Terminological variation, the coexistence of traditional and modern terms, differences between national nomenclatures, and the increasing use of English can create difficulties for students and professionals. Some anatomical terms may have historical synonyms, while certain terms may exist simultaneously in Latin, English, Russian, and local-language forms. These conditions emphasize the importance of consistent terminology education and internationally coordinated nomenclatural practices.

The issue is particularly relevant to medical education in multilingual contexts such as Uzbekistan. The development of professional medical vocabulary in Uzbek involves interaction with Latin, Greek, Russian, and English terminology. In such an environment, knowledge of the Latin origins of medical terms can support accurate interpretation and adaptation. It can also help educators and students distinguish between internationally standardized terminology and language-specific adaptations.

From a broader linguistic perspective, the study demonstrates that professional terminology reflects the history and social organization of scientific knowledge. Medical vocabulary is shaped by institutions, educational traditions, professional communities, international standards, and technological development. Latin represents one of the most visible examples of how a historical language can continue to influence a modern professional domain through terminology even after losing its position as an everyday communicative language.

Therefore, the terminological significance of Latin in medicine can be summarized through several interconnected dimensions: **historical, structural, communicative, educational, and standardizing**. Historically, Latin contributed to the preservation and transmission of medical knowledge. Structurally, its morphological and grammatical resources provided systematic models for terminology formation. Communicatively, Latin-derived terms have supported professional understanding across linguistic boundaries. Educationally, Latin terminology helps medical students understand and organize specialized vocabulary. From the perspective of standardization, Latin has played a significant role in the development of internationally recognizable anatomical and pharmaceutical nomenclatures.



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The study consequently suggests that the future role of Latin in medicine should not be interpreted as a return to Latin as a general scientific language. Rather, its continuing importance is likely to remain concentrated in specialized terminology, nomenclature, medical education, and historical-professional conventions. The increasing dominance of English in scientific communication may continue, but this does not necessarily diminish the value of Latin as a terminological resource.

In conclusion, Latin remains an important component of the linguistic foundation of modern medicine. Its significance is rooted not only in historical tradition but also in its contribution to precision, systematic terminology formation, international nomenclature, professional education, and multilingual medical communication. The continued presence of Latin in contemporary medical terminology demonstrates that linguistic traditions can remain functionally relevant even when the broader communicative role of a language changes.

For this reason, the study of medical Latin should be approached not simply as the study of an ancient language but as the study of a living terminological heritage. Its systematic analysis can contribute to better understanding of medical vocabulary, improve terminology teaching, facilitate communication between different linguistic communities, and support the development of accurate professional language. In the context of contemporary medical science, Latin therefore represents an important link between the historical development of medicine and its modern, increasingly international and technologically mediated form.

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**O‘T-TOSH KASALLIGI, O‘TKIR VA SURUNKALI XOLESISTIT:
ETIOLOGIYASI, PATOGENEZI, ZAMONAVIY TASHXISLASH VA DAVOLASH
STRATEGIYALARI.**

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*Andijon viloyati Paxtaobod tuman Abu Ali ibn Sino nomidagi jamoat
salomatligi texnikumi o‘qituvchisi*

Annotatsiya: Ushbu ilmiy maqolada zamonaviy gastroenterologiya, gepatologiya va xirurgiyaning eng dolzarb muammolaridan biri bo‘lgan o‘t-tosh kasalligi (xolelitiaz), o‘tkir va surunkali xolesistitlarning molekulyar etiologiyasi, chuqurlashtirilgan patogenezi hamda ularni boshqarishning ko‘p tarmoqli (multidisciplinar) yondashuvlari tahlil qilingan. Maqolada safro tarkibining biokimyoviy disbalansi, gepatotsitlar darajasidagi transport tizimlari (ABCG5/G8 reseptorlari), litogenlik indeksining fizik-kimyoviy asosi (Admirand-Small uchburchagi) hamda o‘t pufagi gipokineziyasining neyrogumoral mexanizmlari (xolesistokinin yetishmovchiligi) batafsil yoritilgan.

Kalit so‘zlar: xolelitiaz, o‘tkir kalkulyoz xolesistit, surunkali xolesistit, Admirand-Small diagrammasi, laparoskopik xolesistektomiya, ursodezoksixolat kislotasi (UDXQ), biliar mikrobioma.

**O‘T-TOSH KASALLIGI, O‘TKIR VA SURUNKALI XOLESISTIT:
ETIOLOGIYASI, PATOGENEZI, ZAMONAVIY TASHXISLASH VA DAVOLASH
STRATEGIYALARI.**

Gepatobiliar tizimning yallig‘lanish va destruktiv kasalliklari zamonaviy sog‘liqni saqlash tizimida ham iqtisodiy, ham ijtimoiy-tibbiy jihatdan eng yuqori yuklamani yuzaga keltiruvchi patologiyalar sirasiga kiradi. **O‘t-tosh kasalligi (Xolelitiaz)** va uning manifestatsiyasi hisoblangan **o‘tkir hamda surunkali xolesistit** rivojlangan mamlakatlar aholisining **10-15% qismini**, ayrim endogen etnik guruhlarda (masalan, Shimoliy Amerika tub aholisi) esa **60-70% gacha** bo‘lgan populyatsiyani qamrab oladi.

So‘nggi o‘n yilliklarda hepatobiliar patologiyalarning epidemiologik profilida keskin "yosharish" tendensiyasi kuzatilmoqda. Agar ilgari ushbu guruh kasalliklari asosan involyutsion (keksalik) davr va postmenopauzadagi ayollar patologiyasi hisoblangan bo‘lsa, bugungi kunda reproduktiv yoshdagi, hatto o‘smirlik davridagi shaxslarda ham kalkulyoz xolesistit holatlari ko‘plab qayd etilmoqda. Bu transformatsiya global miqyosdagi "G‘arbcha turmush tarzi" (Western diet), ya‘ni rafinatsiyalangan uglevodlar, trans-yog‘lar iste‘molining ortishi, gipodinamiya, metabolik sindrom va jadal rivojlanayotgan semizlik epidemiyasi bilan bevosita bog‘liq.

Klinik nuqtai nazardan, o‘tkir xolesistit abdominal xirurgiyaga shoshilinch yotqizilayotgan bemorlar orasida o‘tkir appenditsitdan keyin barqaror ravishda **ikkinchi o‘rinni** egallab kelmoqda. Mazkur kasalliklarning patologik asoratlari (septik shok,



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xoledoxolitiaz, o't yo'llari strikturasi, Fater so'rg'ichi adenokarsinomasi va biliar serroz) nogironlik va o'lim ko'rsatkichlarining yuqoriligiga sabab bo'layotgani, muammoni fundamental va molekulyar darajada o'rganishni taqozo etadi.

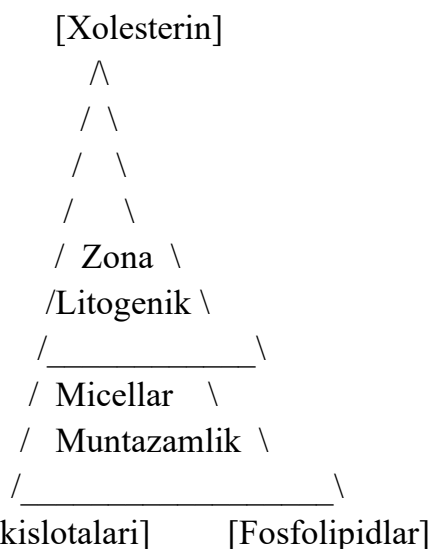
CHUQURLASHTIRILGAN PATOLOGIK ANATOMIYA VA PATOFIZIOLOGIYA

Safroning Fizik-Kimyoviy Gomostazi va Tosh Hosil Bo'lishining Molekulyar Mexanizmi

Safro — jigarning ekskretor va sekretor faoliyati mahsuli bo'lib, murakkab kolloid eritma hisoblanadi. Uning qattiq qoldig'ini asosan uchta o'zaro bog'liq komponent tashkil etadi: **o't kislotalari tuzlari (xolatlar)**, **fosfolipidlar (asosan lesitin)** va **xolesterin**. Oddiy sharoitda erimaydigan gidrofob xolesterin molekullari o't kislotalari va lesitin tomonidan hosil qilingan **mikellar** va **liposomalar** yadrosiga joylashadi. Bu tizim gidrofil tashqi qobiq hosil qilib, xolesterinning suyuq holatda saqlanishini ta'minlaydi.

Admirand-Small Uchburchagi va Litogenlik Indeksi

Safro barqarorligi fizik-kimyoviy jihatdan **Admirand-Small uchburchak diagrammasi** orqali ifodalanadi. Mazkur diagrammada yuqoridagi uch komponentning foiz ulushi ko'rsatiladi.



Xolesterinning foiz ulushi micellar sig'im (erituvchanlik chegarasi) chizig'idan yuqoriga ko'tarilganda, safro **o'ta toyinadi (supersaturation)**. Bu holatda **Litogenlik Indeksi (LI) > 1.0** ga teng bo'ladi.

Molekulyar Gidrodinamika va Kristallizatsiya Kaskadi:

1. **Gepatotsellyar transport nosozligi:** Xolesterinning safroga gipersekresiyasi asosan hepatotsitning apikal membranasida joylashgan **ABCG5 va ABCG8** ABC-transporter oqsillarining genetik polimorfizmi yoki giperekspressiyasi hisobiga yuzaga keladi.

2. **Nukleatsiya faza (Kristallanish faollashuvi):** Supersaturatsiyalangan safroda dastlab suyuq-kristallik vezikulalar ajralib chiqadi. Pufak shilliq qavatining surunkali ta'sirlanishi oqibatida ajraladigan **mutsin-glikoprotein kompleksi** pro-nukleator (kristallanishni tezlashtiruvchi) omil sifatida ushbu vezikulalarni monogidrat xolesterin kristallariga aylantiradi.

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3. **Biliar Sladj (Quymich) shakllanishi:** Kristallangan xolesterin zarralari kalsiy bilirubinat va mutsin gellari bilan birlashib, makroskopik mikrolitlarni — *biliar sladjni* hosil qiladi.

4. **O't pufagi gipokineziyasi:** O't pufagi devoridagi silliq mushaklarning **Xolesistokinin-1 (CCK-1)** reseptorlariga bo'lgan sezgirliги pasayadi. Natijada postprandial (ovqatdan keyingi) qisqarish fraksiyasi 40% dan pastga tushadi, evakuatsiya kechikadi va mikrolitlar konglomeratsiyaga uchrab, yirik toshlarni (konkrementlarni) shakllantiradi.

2.2. O'tkir Xolesistit Patogenezi Uch Bosqichli Kaskadi

O'tkir xolesistit rivojlanishi shunchaki bakterial infeksiya emas, balki mexanik va biokimyoviy omillar zanjiridir.

[Tosh tiqilishi] → [Intraluminal bosim ↑] → [Lozolecitin ta'siri] → [Ishemiya] → [Bakterial translokatsiya]

1. **Mexanik bosqich:** Tosh o't pufagi bo'yniga yoki *ductus cysticus* (pufak yo'li)ga tiqilib qoladi. Hidrostatik bosim pufak ichida tezda 20-30 sm suv ustunigacha ko'tariladi. Bu devorlarning gipercho'zilishiga va biliar kolikaga sabab bo'ladi.

2. **Kimyoviy yallig'lanish bosqichi:** Cho'zilgan shilliq qavat faollashgan fosfolipaza A2 fermentini ajratadi. Bu ferment safrodagi lesitinni **lizolesitinga** aylantiradi. Lizolesitin hujayra membranalar uchun o'ta toksik bo'lib, shilliq qavatning kimyoviy destruksiyasini va prostaglandinlar (PGE2, PGI2) sintezini boshlab beradi. Natijada shish va mikrosirkulyator ishemiya chuqurlashadi.

3. **Infeksion faza (Kechki bosqich):** Ishemiya va shilliq qavat to'sig'ining (shilliq barerining) buzilishi oqibatida, o'n ikki barmoqli ichakdan transperitoneal yoki retrograd yo'l bilan kelgan bakteriyalar (asosan *Escherichia coli*, *Klebsiella pneumoniae*, *Enterococcus faecalis* va anaeroblar *Bacteroides fragilis*) faol ko'paya boshlaydi. Bu jarayon kaskadni kataral shakldan flegmonoz va gangrenoz shaklga o'tkazadi.

ZAMONAVIY DIAGNOSTIK STRATEGIYA VA TOKYO GUIDELINES (TG18/TG20) MEZONLARI

Klinik amaliyotda diagnostik xatolarni minimallashtirish maqsadida butun dunyo xirurglari va gastroenterologlari **Tokyo Guidelines (TG18)** xalqaro standartlariga tayanadi.

Diagnostik Mezonlar Tizimi

O'tkir xolesistit tashxisini yakuniy tasdiqlash uchun uchta guruh mezonlarining kombinatsiyasi talab etiladi:

• **A. Mahalliy yallig'lanish belgilari:**

○

1. Merfi (Murphy) simptomi (ijobiy).

○

2. O'ng qovurg'a osti sohasida og'riq, taranglik yoki palpatsiya qilinuvchi infiltrat.

• **B. Tizimli yallig'lanish belgilari:**

○

1. Isitma ($> 38^{\circ}\text{C}$).

○



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2. Leykotsitoz (oq qon tanachalari $> 10 \times 10^9/L$ yoki $< 4 \times 10^9/L$) yoki C-reaktiv oqsilning (CRP) yuqori ko'rsatkichi ($\geq 30 \text{ mg/L}$).

• **C. Instrumental vizualizatsiya ma'lumotlari:**

○

1. O'tkir xolesistitga xos ultratovush yoki kompyuter tomografiyasi belgilari.

Tashxisiy formula: Agar **A + B** guruhidan bittadan belgi bo'lsa — *Taxminiy tashxis*; agar **A + B + C** guruhlaridan kamida bittadan belgi tasdiqlansa — *Yakuniy (aniq) tashxis* qo'yiladi.

3.2. Og'irlik Darajalari va Ularning Klinik Ma'nosi (Grading)

TG18 yo'riqnomasiga muvofiq, o'tkir xolesistit uchta og'irlik darajasiga bo'linadi, bu esa davolash taktikasini tubdan belgilaydi:

Daraja (Grade)	Klinik Ta'rifi	Patofiziologik Mezoni
		Yurak-qon tomir: gipotoniya (dofamin/noradrenalin talab etiladi). Neyrologik: ong chalkashishi. Respirator: $\text{PaO}_2/\text{FiO}_2 < 300$. Buyrak: oliguriya, kreatinin $> 2.0 \text{ mg/dl}$. Gepatobiliar: INR > 1.5 . Gematologik: trombotsitlar $< 100,000/\mu\text{l}$. Leykotsitoz $> 18,000/\mu\text{l}$. O'ng qovurg'a ostida og'irliq infiltrat palpatsiya qilinishi. Simptomlar davomiyligi > 72 soat. Mahalliy destruksiya belgilari (gangrena, peritonit, pufak atrofida abscess).
Grade III (Og'ir)	Tizimli a'zolar bilan disfunksiyasi kechuvchi shakl	
Grade II (O'rta-og'ir)	Mahalliy asoratlar va chuqur yallig'lanish belgilari	
Grade I (Yengil)	Tizimli yoki chuqur mahalliy asoratlarsiz yallig'lanish kechuvchi shakl	Bemor organlar disfunktsiyasiga ega emas, jarayoni faqat o't pufagi devori bilan cheklangan, turg'un xirurgik risk past.

Instrumental va Innovatsion Vizualizatsiya Metodologiyasi

1. Ultratovush tekshiruv (UTT / Ultrasound):

Birinci bosqich diagnostika hujjati. Zamonaviy skanerlashda o'tkir xolesistitning o'ziga xos exografik triadasiga rioya qilinadi:

• **"Ultrasonic Murphy sign":** datchik bilan o't pufagi proeksiyasiga bosilganda bemorning og'riqdan chuqur nafas ololmay qolishi.

• **Devor qalinlashishi:** $> 4 \text{ mm}$ (shish va asoratlangan infiltratsiya oqibatida devorning uch qatlamli bo'lib ko'rinishi).

• **Perixolesistik suyuqlik:** pufak atrofidagi erkin eksudat.

2. Magnit-Rezonans Xolangiopankreatografiya (MRXPG / MRCP):



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Kalkulyoz xolesistit fonida **xoledoxolitiaz** (umumiy o't yo'liga tosh tushishi) shubhasi bo'lganda qo'llaniladigan noinvaziv oltin standart. U o't yo'llarining 3D arxitektonikasini ko'rish imkonini beradi.

3. Xolesintigrafiya (HIDA skanerlash):

Radioizotop

^{199m}Tc -mbrofenin moddasini yuborish orqali bajariladi. Agar o't pufagi yo'li tosh bilan to'liq bitgan bo'lsa, izotop jigardan o't yo'llariga o'tadi, ammo o't pufagida ko'rinmaydi. Bu o'tkir xolesistit diagnostikasining **eng yuqori spesifiklikka (~98%)** ega usulidir, ammo skanerlash uzoq vaqt talab etgani sababli cheklangan holatlarda qo'llaniladi.

TERApevtik VA XIRURGIK TRANSFORMATSIYALAR

O'tkir Xolesistitni Davolash Algoritmi (TG18 Asosida)

Grade I (Yengil) Taktikasi:

Zudlik bilan antibakterial va infuzion terapiya boshlanadi. Davolash boshlanganidan keyingi dastlabki **72 soat ichida (optimal holatda 24 soat ichida) Erta Laparoskopik Xolesistektomiya (ELC)** o'tkaziladi. Bu chora bemorning hospitalizatsiya muddatini qisqartiradi.

Grade II (O'rta-og'ir) Taktikasi:

Agar bemorda kuchli mahalliy infiltratsiya bo'lsa, operatsiya jarayoni anatomik tuzilmalarni farqlash qiyinligi sababli xavfli kechishi mumkin. Tajribali xirurglar tomonidan зудlik bilan laparoskopik operatsiya bajariladi. Agar xiralashgan yallig'lanish foni tufayli xavf yuqori bo'lsa, operatsiya vaqtida xavfsizlikni ta'minlash maqsadida **"Strasberg xavfsizlik vaqti" (Critical View of Safety — CVS)** tamoyillariga rioya qilinadi. Pufak yo'li va pufak arteriyasi to'liq ajratilib, jigar konturi ko'rinmaguncha hech qanday tuzilma kesilmaydi. Agar CVSGa erishib bo'lmasa, operatsiya **ochiq usulga** o'tkaziladi yoki **subtotal xolesistektomiya** bajariladi.

Grade III (Og'ir) Taktikasi:

Bemor hayotiy a'zolar faoliyatini ushlab turish uchun darhol Reanimatsiya (ICU) bo'limiga joylashtiriladi. Organlar disfunktsiyasini dori-darmonlar bilan korreksiya qilish parallel ravishda olib boriladi. Mahalliy yallig'lanish o'chog'ini yo'qotish va intrapufak bosimini pasaytirish uchun ultratovush nazorati ostida **Perkutan Transgepatik Xolesistostomiya (PTCS)** — ya'ni teri orqali pufakka drenaj qo'yish amaliyoti bajariladi. Bemorning ahvoli barqarorlashgandan so'ng (odatda 6-8 hafta o'tgach), rejali ravishda laparoskopik xolesistektomiya bajariladi.

4.2. Surunkali Xolesistit Farmakoterapiyasining Patogenetik Asoslari

Surunkali xolesistit (kalkulyoz va akalkulyoz) davolash tizimli farmakologik va parhez korreksiyasini talab etadi.

1. Biliar Mikrobioma va Antibakterial Terapiya:

Yaqinda o'tkazilgan metagenomik tadqiqotlar shuni ko'rsatdiki, sog'lom o't pufagida ham o'ziga xos mikrobioma mavjud. Surunkali xolesistitda ushbu mikrobioma disbiozga uchraydi, *Firmicutes* va *Bacteroidetes* nisbati buzilib, patogen guruhlar ko'payadi.



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Kuchayish davrida biliar tizimga yuqori konsentratsiyada o'tuvchi antibiotiklar guruhlarini buyuriladi:

- **Sefalosporinlar III-IV avlod** (Seftriakson, Sefoperazon) + **Metronidazol** (anaeroblarga qarshi).

- **Ftorxinolonlar** (Siprofloksatsin, Levofloksatsin).

2. Litometofilitika va Ursodezoksixolat Kislotalari (UDXQ):

UDXQ (Ursodeoxycholic acid) surunkali xolesistit va xolelitiya terapiyasida etiopatogenetik dori vositasidir. Uning ta'sir mexanizmlari quyidagilardan iborat:

- **Xolesterologik effekt:** Ichakda xolesterin so'rilishini kamaytiradi va jigarda uning sintezini ingibirlaydi.

- **Xoleretik effekt:** Hidrofil (toksik) o't kislotalari miqdorini oshirib, toksik lipofil kislotalarni siqib chiqaradi va hepatotsitlarni sitolizdan himoya qiladi.

- **Litoliz faolligi:** Davolash dozasi (10-15 mg/kg/sutka) hisobidan 6-12 oy davomida o'lchami < 10 mm bo'lgan, rentgen-negativ (toza xolesterinli) toshlarni eritish imkonini beradi.

[UDXQ iste'moli] → [Gepatotoksik lipofil kislotalar ↓] → [Xolesterin micellar eruvchanligi ↑] → [Mayda toshlar erishi]

3. Biliar silliq mushaklar disfunksiyasini to'g'rilash:

Og'riq sindromini to'xtatish uchun an'anaviy nospesifik spazmolitiklar o'rniga, asosan **Mebeverin** (selektiv sodium kanallari blokatori) yoki **Gimekromon** (Oddi sfinkteriga selektiv spazmolitik ta'sir ko'rsatuvchi xoleretik) qo'llaniladi. Gimekromon safro ajralishini rag'batlantiradi va o't yo'llaridagi bosimni pasaytiradi.

ASORATLARNING MOLEKULYAR VA KLINIK KLASSIFIKATSIYASI

Xolesistit va xolelitiya vaqtida davolanmasa, murakkab va o'lim xavfi yuqori bo'lgan asoratlarga transformatsiyalanadi:

1. **Mirizzi Sindromi:** O't pufagi bo'yniga yoki pufak yo'liga tiqilib qolgan yirik toshning tashqi tomondan umumiy jigar yo'lini (*ductus hepaticus communis*) qisib qo'yishi. Bu holat mexanik sariqlik va xolangitga sabab bo'ladi. Og'ir shakllarida tosh devorni teshib, pufak-xoledox biliar oqmasini (fistula) yuzaga keltirishi mumkin.

2. **Biliar Ileyus (O't-toshli ichak tutilishi):** Yallig'langan o't pufagi devori o'n ikki barmoqli ichak yoki chamber ichak bilan bitishma hosil qiladi va nekroz natijasida ichakka oqma ochiladi. Yirik tosh ichak bo'shlig'iga o'tib, yonbosh ichakning distal qismiga (ileosekal klapan sohasiga) tiqilib qoladi va o'tkir mexanik ichak tutilishini chaqiradi.

3. **Pufak Gidropsiyasi (Vodyanka):** Pufak yo'li tosh bilan to'liq bitib qolganda, infeksiya bo'lmasa, safro pigmentlari shilliq qavat tomonidan qayta so'riladi. Pufak bo'shlig'ida faqatgina rangsiz shilliq va mutsin suyuqligi to'planib, pufak ulkan o'lchamlargacha cho'ziladi.

XULOSA

O't-tosh kasalligi va xolesistitlarni o'rganish bugungi kunda faqatgina mexanik xirurgik yondashuvlardan iborat emas. Zamonaviy hepatologiya va xirurgiya ushbu muammolarni hepatotsitlar darajasidagi molekulyar transport nosozligi va tizimli metabolik kasallik



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sifatida baholamoqda. O'tkir destruktiv shakllarda erta laparoskopik xolesistektomiya asoratlari profilaktikasining eng ishonchli usuli bo'lib qolmoqda. Kelajakda gepatobiliar patologiyalarni boshqarish litogen safroni garmonal va genetik darajada modifikasiyalash, biliar mikrobiomani barqarorlashtirish hamda invaziv operatsiyalardan butunlay voz kechgan holda maqsadli molekulyar xolelitoliz terapiyasini rivojlantirishga yo'naltiriladi.

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ETIOLOGY, PATHOGENESIS, DIAGNOSIS, AND PRINCIPLES OF
TREATMENT OF GASTRIC AND DUODENAL PEPTIC ULCER DISEASE

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Abstract: Peptic ulcer disease of the stomach and duodenum is a common gastrointestinal disorder characterized by a mucosal defect extending through the muscularis mucosae. Its development is associated primarily with *Helicobacter pylori* infection, nonsteroidal anti-inflammatory drug use, excessive gastric acid and pepsin activity, and impairment of mucosal defense mechanisms. This article examines the major etiological factors, key pathogenetic mechanisms, diagnostic approaches, and modern principles of treatment of gastric and duodenal peptic ulcers. Particular attention is given to the role of *H. pylori* infection, disruption of the gastric mucosal barrier, acid-peptic injury, and the effects of nonsteroidal anti-inflammatory drugs. The diagnostic value of upper gastrointestinal endoscopy, *H. pylori* testing, and laboratory investigations is discussed. Modern treatment principles include eradication therapy for *H. pylori*, suppression of gastric acid secretion, elimination of ulcerogenic factors, and prevention of recurrence and complications. Early diagnosis and individualized treatment are essential for reducing the risk of gastrointestinal bleeding, perforation, penetration, and other serious complications.

Keywords: peptic ulcer disease, gastric ulcer, duodenal ulcer, *Helicobacter pylori*, pathogenesis, endoscopy, gastric acid, proton pump inhibitors, eradication therapy, gastrointestinal complications.

INTRODUCTION

Peptic ulcer disease (PUD) of the stomach and duodenum remains an important gastrointestinal disorder because of its potential to cause bleeding, perforation, penetration, and recurrence. The disease develops when aggressive factors, particularly gastric acid and pepsin, overcome the protective mechanisms of the gastroduodenal mucosa. The two major etiological factors are *Helicobacter pylori* infection and the use of nonsteroidal anti-inflammatory drugs (NSAIDs). *H. pylori* contributes to mucosal inflammation and disruption of normal protective processes, whereas NSAIDs impair prostaglandin-dependent mucosal protection and increase susceptibility to acid-mediated injury. Clinical manifestations vary according to ulcer localization and severity and may include epigastric pain, dyspeptic symptoms, nausea, vomiting, or signs of gastrointestinal bleeding. Therefore, accurate identification of the underlying cause, timely diagnosis, and selection of appropriate therapy are essential components of modern management.

MATERIALS AND METHODS

The study was conducted through a structured analysis of scientific literature concerning the etiology, pathogenesis, diagnosis, and treatment of gastric and duodenal peptic ulcer



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disease. Particular attention was given to the pathogenic role of *Helicobacter pylori*, NSAID-associated mucosal injury, gastric acid secretion, and impairment of mucosal defense mechanisms. Diagnostic approaches were reviewed according to their clinical significance, including upper gastrointestinal endoscopy, *H. pylori* detection methods, and relevant laboratory investigations. Therapeutic approaches were analyzed with consideration of the underlying etiological factor, ulcer localization, disease severity, and the presence or absence of complications. The comparative assessment focused on eradication therapy for *H. pylori*, acid-suppressive treatment, elimination of ulcerogenic factors, and strategies for preventing recurrence. The obtained information was systematized to identify the relationship between etiological factors, pathogenetic mechanisms, diagnostic findings, and therapeutic decisions in contemporary clinical management.

RESULTS

The analysis showed that peptic ulcer disease develops through a multifactorial interaction between mucosal damaging factors and impaired protective mechanisms. *Helicobacter pylori* infection was identified as a major etiological factor because persistent colonization promotes chronic gastric inflammation and weakens mucosal resistance. NSAID use represents another important cause, mainly through inhibition of prostaglandin synthesis, which reduces mucus and bicarbonate secretion and compromises mucosal blood flow. Increased acid-peptic activity further contributes to ulcer formation, particularly when protective mechanisms are insufficient. Upper gastrointestinal endoscopy remains central to diagnosis because it directly visualizes the ulcer, determines its localization and morphology, and allows biopsy when clinically indicated. Testing for *H. pylori* is essential for identifying an underlying infectious cause. Therapeutically, successful management requires elimination of the causative factor, appropriate acid suppression, eradication of *H. pylori* when detected, and monitoring for complications such as bleeding, perforation, and penetration.

DISCUSSION

The findings indicate that successful management of peptic ulcer disease requires treatment directed at both the underlying cause and the mechanisms responsible for mucosal injury. In patients with *H. pylori* infection, eradication therapy is a fundamental component because persistent infection can maintain inflammation and increase the risk of ulcer recurrence. Acid suppression with proton pump inhibitors promotes ulcer healing by reducing gastric acid exposure and allowing restoration of the damaged mucosa. In NSAID-associated ulcers, discontinuation or appropriate modification of the offending drug is particularly important, while gastroprotective therapy may be required when continued NSAID treatment is unavoidable. Endoscopic assessment is also important for evaluating ulcer characteristics and identifying signs of bleeding or other complications. Severe bleeding may require endoscopic hemostatic intervention, whereas perforation, penetration, or uncontrolled hemorrhage can necessitate surgical management. Thus, treatment should be individualized according to etiology, clinical severity, ulcer characteristics, and complications.



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An important aspect of peptic ulcer management is the prevention of recurrence after the initial ulcer has healed. Clinical improvement alone does not always indicate complete elimination of the underlying cause, particularly in patients with persistent *Helicobacter pylori* infection or continued exposure to ulcerogenic medications. Therefore, follow-up should focus not only on symptom resolution but also on confirmation of successful *H. pylori* eradication when infection has been identified. The increasing problem of antimicrobial resistance also makes treatment selection more important, as previous antibiotic exposure and local resistance patterns may influence therapeutic effectiveness. In patients with recurrent or refractory ulcers, clinicians should reconsider the initial diagnosis, treatment adherence, continued NSAID use, persistent *H. pylori* infection, and less common causes of ulceration. Lifestyle-related factors, including smoking and excessive alcohol consumption, may additionally interfere with mucosal healing and should be addressed as part of preventive management. Appropriate patient education is therefore essential, particularly regarding medication adherence, avoidance of unnecessary NSAID use, recognition of alarm symptoms, and the importance of follow-up evaluation. A structured long-term approach can reduce recurrence and facilitate earlier recognition of potentially serious complications.

CONCLUSION

Peptic ulcer disease of the stomach and duodenum is a multifactorial disorder in which *Helicobacter pylori* infection, NSAID use, excessive acid-peptic activity, and impaired mucosal protection play major roles. The analysis demonstrates that effective management depends on accurate identification of the etiological factor and timely assessment of ulcer severity. Upper gastrointestinal endoscopy provides important information about ulcer localization, morphology, and possible complications, while *H. pylori* testing is essential for selecting appropriate eradication therapy. Modern treatment should combine elimination of the causative factor, adequate acid suppression, mucosal healing, and prevention of recurrence. Particular attention should be given to potentially life-threatening complications, including gastrointestinal bleeding and perforation, which require urgent therapeutic intervention. Therefore, an individualized and comprehensive approach integrating etiological treatment, pharmacological therapy, endoscopic monitoring, and prevention of risk factors represents an important principle of contemporary management of gastric and duodenal peptic ulcer disease.

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STRATEGIES FOR INTEGRATING ARTIFICIAL INTELLIGENCE TOOLS
INTO PROJECT-BASED ENGLISH LANGUAGE TEACHING TO ENHANCE
STUDENTS' COMMUNICATIVE COMPETENCE

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Annotation: *This methodological chapter presents the research design for a doctoral study investigating strategies for integrating artificial intelligence (AI) tools into project-based English language teaching (PBLT) to enhance learners' communicative competence. Grounded in Canale and Swain's (1980) model of communicative competence and Long's (1996) Interaction Hypothesis, the study adopts a mixed-methods action research design implemented over three iterative cycles in an authentic tertiary EFL classroom. Quantitative data are collected through pre- and post-intervention communicative competence assessments and structured questionnaires, while qualitative data are drawn from classroom observations, semi-structured interviews, student reflective journals, and AI-interaction logs. The intervention embeds generative AI tools—conversational chatbots, automated feedback systems, and AI-assisted collaborative platforms—within a sequence of extended, real-world communicative projects. Data are analyzed using descriptive and inferential statistics alongside thematic analysis, with triangulation ensuring methodological rigor. The chapter details the research paradigm, questions, context, procedure, instruments, and ethical safeguards, arguing that a convergent mixed-methods action research approach is best suited to capturing both measurable gains in communicative competence and the situated, evolving classroom dynamics of AI-mediated project-based instruction.*

This chapter presents the methodological framework underpinning the investigation of strategies for integrating artificial intelligence (AI) tools into project-based English language teaching (PBLT) with the aim of enhancing students' communicative competence. The chapter is organized to move from broad epistemological commitments to the concrete procedures of data collection and analysis, situating each methodological choice within the theoretical foundations of communicative language teaching (Canale & Swain, 1980) and interaction-driven second language acquisition (Long, 1996). Because the phenomenon under investigation is inherently dynamic—AI tools evolve rapidly, classroom conditions vary, and communicative competence develops gradually through iterative practice—the study requires a design capable of capturing both measurable outcomes and the lived, contextual experience of learners and teachers as they adopt new technologies within collaborative, task-driven project work. The chapter therefore justifies the selection of a mixed-methods action research design, defines the research questions and objectives that guide data collection, describes the setting and participants, details the pedagogical intervention through which AI tools are embedded in project-based instruction, and specifies



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the instruments, procedures, and analytic techniques used to answer the research questions. The chapter concludes with a discussion of validity, reliability, ethical considerations, and the limitations inherent to the chosen design. The study is situated within a pragmatic research paradigm, which privileges the research question over allegiance to a single epistemological tradition and licenses the combined use of quantitative and qualitative techniques within one coherent study (Johnson & Onwuegbuzie, 2004). A purely quantitative design would allow statistical comparison of communicative competence scores before and after the intervention but would offer little insight into how learners actually engage with AI tools, negotiate meaning during project tasks, or experience shifts in confidence and autonomy. Conversely, a purely qualitative design would illuminate lived experience but would not permit generalizable claims about the magnitude of gains in communicative competence. A convergent mixed-methods design, in which quantitative and qualitative strands are collected concurrently and integrated at the interpretation stage, is therefore adopted to provide a more complete account of the phenomenon (Creswell, 2022). This mixed-methods logic is embedded within an action research framework, which is particularly well suited to classroom-based pedagogical innovation because it treats the teacher-researcher as an active agent who plans, implements, observes, and reflects upon an intervention in successive cycles (Kemmis & McTaggart, 2005). Action research has been widely endorsed in the applied linguistics literature as a methodology that allows practitioners to generate locally relevant, evidence-based pedagogical knowledge while simultaneously refining practice (Maugeri & Fabbri, 2026). The combination of mixed methods and action research—sometimes termed mixed methods action research—enables the present study to mix quantitative instruments (assessments, questionnaires) with qualitative techniques (observation, interview, reflective journals) within each of three planned cycles, so that findings from one cycle inform the refinement of AI integration strategies in the next. The study is guided by three research questions: (1) What strategies most effectively integrate AI tools into project-based English language teaching? (2) To what extent does AI-integrated project-based instruction enhance students' communicative competence across its grammatical, sociolinguistic, discourse, and strategic dimensions (Canale & Swain, 1980)? (3) How do students and teachers perceive and experience the process of using AI tools within collaborative project work? Correspondingly, the study's objectives are to identify and document viable AI-integration strategies within a project-based framework, to measure changes in communicative competence using validated pre- and post-intervention instruments, and to interpret the perceptual and experiential dimensions of AI-mediated project-based learning through qualitative inquiry. The study will be conducted in an intact undergraduate EFL classroom at the tertiary level, a context selected because project-based instruction is already a recognized component of the curriculum and because learners possess sufficient digital literacy to engage independently with AI tools. Participants will be recruited through purposive sampling, targeting one or two intact class sections (approximately 60–90 students in total) taught by the researcher or a collaborating instructor, consistent with the participant numbers reported in comparable

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AI-and-project-based-learning studies (Liang & Luo, 2024; Ruiz Viruel et al., 2025). A smaller purposive subsample of 10–15 students and 2–3 instructors will be selected for the qualitative interview strand, chosen to represent a range of proficiency levels, technology-adoption attitudes, and project roles. Prior consent, described in Section 3.9, will be obtained from all participants and, where applicable, institutional gatekeepers. The intervention consists of a sequence of three extended communicative projects, each lasting approximately four to five weeks, in which learners work in small collaborative teams to research, design, and present a real-world communicative product (for example, a multimedia public-service campaign, a cross-cultural exchange proposal, or a professional portfolio). Within each project cycle, AI tools are deliberately embedded at specific pedagogical junctures: a conversational AI chatbot is used to provide learners with low-anxiety, goal-oriented speaking practice and immediate corrective feedback during rehearsal stages, consistent with evidence that such tools support communicative strategy development (Long & Lin, 2022; Qiao & Zhao, 2023); a generative AI writing assistant is used to scaffold collaborative drafting and revision of project documents, following the course-design logic proposed by Liang and Luo (2024) for integrating large language models into project-based curricula; and an AI-assisted presentation or feedback platform is used to support rehearsal of the final oral presentation. Each cycle follows the action research spiral of planning, action, observation, and reflection (Kemmis & McTaggart, 2005), with the researcher adjusting the specific AI-integration strategy for the subsequent cycle based on cycle-end data. Quantitative data will be collected using a communicative competence assessment battery, administered as a pre-test before Cycle 1 and a post-test after Cycle 3, comprising a structured oral interaction task, a written task, and a discrete-item component targeting grammatical and sociolinguistic sub-competencies, scored using an analytic rubric derived from the four-component model of communicative competence (Canale & Swain, 1980). A Likert-scale questionnaire will additionally measure learners' self-reported communicative confidence, perceived usefulness of AI tools, and engagement, administered at the end of each cycle to permit repeated-measures comparison. Qualitative data will be collected through three complementary instruments. First, semi-structured classroom observations, guided by a structured protocol, will document how learners interact with AI tools and with one another during project work, capturing instances of negotiation of meaning central to the Interaction Hypothesis (Long, 1996). Second, semi-structured interviews with the purposive subsample of students and instructors will explore perceptions of the AI-integration strategies, barriers encountered, and perceived changes in communicative confidence. Third, learners will maintain reflective journals across each project cycle, and AI-interaction logs (chat transcripts and feedback records) will be collected as a naturalistic trace data source, providing an unobtrusive record of learners' actual language production during AI-mediated exchanges. The study will unfold across one academic semester, organized into three action research cycles of approximately five weeks each, preceded by a one-week orientation period in which students are introduced to the AI tools and platform interfaces, and followed by a one-week post-intervention data collection period. Within each cycle, the researcher will

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plan the specific AI-integration strategy, implement it within the ongoing project work, observe and document classroom interaction, and hold a brief reflective debrief with the collaborating instructor before adjusting the strategy for the next cycle. This iterative structure allows the study to answer Research Question 1 empirically, by tracking which specific integration strategies are refined, retained, or discarded across cycles, while Research Questions 2 and 3 are addressed through the cumulative pre-post and end-of-cycle data described above. Quantitative data will be analyzed using descriptive statistics (means, standard deviations) and inferential techniques, including paired-samples t-tests or, where cycle-level repeated measures are involved, repeated-measures analysis of variance, to determine whether gains in communicative competence and confidence across cycles are statistically significant, following analytic approaches used in comparable AI-and-language-learning intervention studies (Qiao & Zhao, 2023). Effect sizes will be reported alongside significance values to indicate the practical magnitude of any observed change. Qualitative data (observation notes, interview transcripts, reflective journals, and AI-interaction logs) will be analyzed using thematic analysis, involving iterative coding to identify recurring patterns related to AI-integration strategies, communicative competence development, and learner and instructor perceptions. Codes will be organized into broader themes and cross-checked against the quantitative results in a joint display, a technique recommended for integrating strands in convergent mixed-methods designs (Creswell, 2022; Johnson & Onwuegbuzie, 2004). This integration stage—rather than the separate analysis of each data type—constitutes the central analytic move of the study, allowing statistically significant gains to be interpreted in light of the specific classroom processes that the qualitative data reveal. Multiple strategies will be used to strengthen the credibility of the study. Methodological triangulation, achieved by combining assessment scores, questionnaire data, observation, interview, and documentary evidence, will allow convergent or divergent findings across data sources to be identified and interpreted. The communicative competence assessment rubric will be piloted and reviewed by two independent raters, with inter-rater reliability calculated using Cohen's kappa or an intraclass correlation coefficient. Member checking will be used with the interview subsample, allowing participants to confirm or challenge the researcher's interpretation of their responses. Because the researcher may also act as the instructor, reflexive journaling and peer debriefing with the collaborating instructor will be used throughout the cycles to guard against undue influence on data interpretation, a safeguard consistent with recommended practice in practitioner action research (Kemmis & McTaggart, 2005; Maugeri & Fabbri, 2026). The study will be submitted for institutional ethical approval prior to data collection. Informed consent will be obtained from all participants, with clear information provided about the voluntary nature of participation, the right to withdraw without academic penalty, and the anonymization of all identifying information in reporting. Because the intervention involves learners submitting written and spoken output to third-party AI platforms, participants will be informed about what data such platforms may retain, and, where feasible, tools with transparent data-handling policies suitable for educational use will be prioritized. AI-interaction logs and journals will be stored

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securely and accessible only to the research team, and pseudonyms will be used in all excerpts reported in the findings chapters. Several limitations are acknowledged. The use of an intact classroom sample, rather than random assignment, limits the causal strength of quantitative findings and introduces the possibility of confounding variables such as instructor effect or prior technology exposure. The relatively short, single-semester timeframe may be insufficient to capture the longer-term development of communicative competence, which is widely regarded as a gradual, non-linear process. The researcher's potential dual role as both instructor and investigator, while mitigated through reflexive strategies, may still introduce a degree of observer bias. Finally, findings drawn from a single institutional and cultural context should be generalized to other settings with appropriate caution, and future replication across diverse EFL contexts is recommended to test the transferability of the AI-integration strategies identified here.

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**XO'JALIK YURITUVCHI SUBYEKTLAR TOMONIDAN YURITILADIGAN
QO'SHILGAN QIYMAT SOLIG'I BUXGALTERIYA HISOBINING AHAMIYATI**

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“Surxondaryo invest AJ” mutaxassisi

Annotatsiya: Ushbu maqolada xo'jalik yurituvchi subyektlarda qo'shilgan qiymat solig'i (QQS) buxgalteriya hisobini yuritishning nazariy-uslubiy asoslari, uning iqtisodiy mohiyati va amaliy ahamiyati ko'rib chiqilgan. Shuningdek, QQS bo'yicha asosiy xo'jalik operatsiyalarining buxgalteriya provodkalari misollar asosida yoritilgan.

Kalit so'zlar: qo'shilgan qiymat solig'i, buxgalteriya hisobi, provodka, byudjet, soliq majburiyati, hisob-kitob, xo'jalik subyekti.

KIRISH

Bozor iqtisodiyoti sharoitida davlat byudjetining shakllantirilishida bilvosita soliqlar, xususan qo'shilgan qiymat solig'i muhim o'rin tutadi. QQS mahsulot, ish va xizmatlarning ishlab chiqarish hamda muomala jarayonining barcha bosqichlarida yaratilgan qo'shimcha qiymatning bir qismini byudjetga undirish shaklidagi bilvosita soliq hisoblanadi. Ushbu soliq turi ko'pchilik davlatlarning, jumladan O'zbekiston Respublikasining soliq tizimida asosiy daromad manbalaridan biri sifatida qaralib, uning to'g'ri va o'z vaqtida hisoblanishi, buxgalteriya hisobida aks ettirilishi hamda byudjetga o'tkazilishi xo'jalik yurituvchi subyektlar faoliyatining muhim tarkibiy qismi hisoblanadi.

QQS buxgalteriya hisobining sifatli tashkil etilishi nafaqat korxonaning soliq intizomiga rioya qilishini ta'minlaydi, balki uning moliyaviy holatini to'g'ri baholash, likvidlikni boshqarish va soliq risklarini kamaytirish imkonini beradi. Shu bois, ushbu masalaning dolzarbligi va ilmiy-amaliy ahamiyati yuqori bo'lib qolmoqda.

Asosiy qism

1. Qo'shilgan qiymat solig'ining iqtisodiy mohiyati

Qo'shilgan qiymat solig'i — bu mahsulot yoki xizmatning har bir ishlab chiqarish va sotish bosqichida yaratilgan qo'shimcha qiymatga nisbatan hisoblanadigan bilvosita soliqdir. Uning asosiy xususiyati shundaki, soliq yukining yakuniy og'irligi iste'molchi zimmasiga tushadi, korxona esa faqat soliqni hisoblab, byudjetga o'tkazuvchi vositachi vazifasini bajaradi.

QQSning mexanizmi ikki asosiy tushunchaga asoslanadi:

- Chiqish QQS (hisoblangan QQS) — sotilgan mahsulot, ish yoki xizmatlar bo'yicha xaridordan undirilgan soliq summasi;
- Kirish QQS (hisobga olinadigan QQS) — xom ashyo, material, tovar yoki xizmatlarni xarid qilishda yetkazib beruvchiga to'langan soliq summasi.

Byudjetga to'lanishi lozim bo'lgan soliq summasi ushbu ikki ko'rsatkich o'rtasidagi farq sifatida aniqlanadi.

2. Xo'jalik subyektlarida QQS buxgalteriya hisobining tashkil etilishi



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QQS buxgalteriya hisobi milliy hisob rejasida maxsus ajratilgan hisob raqamlari orqali yuritiladi. Bunda odatda quyidagi hisob raqamlaridan foydalaniladi:

- 4010-hisob — "Xaridorlar va buyurtmachilar bilan hisob-kitoblar";
- 4410- hisob — " Budjetga soliqlar va yig'imlar bo'yicha bo'nak to'lovlari (turlari bo'yicha)".
- 6010-hisob — Mol yetkazib beruvchilar va pudratchilarga to'lovlar bo'yicha joriy majburiyatlar
- 6410-hisob — "Byudjetga to'lovlar bo'yicha qarzarlar (turlari bo'yicha)".

QQS hisobining to'g'ri tashkil etilishi quyidagi vazifalarni bajarishni talab qiladi: soliq solinadigan aylanmani to'g'ri aniqlash, soliq stavkalarini to'g'ri qo'llash, hisob-fakturalarni o'z vaqtida rasmiylashtirish va soliq deklaratsiyalarini belgilangan muddatlarda topshirish.

3. QQS bo'yicha asosiy buxgalteriya provodkalari

Xo'jalik subyektlarida QQS bilan bog'liq eng ko'p uchraydigan xo'jalik operatsiyalari va ularning buxgalteriya yozuvlari quyidagi jadvalda keltirilgan:

1-jadval.

№	Xo'jalik operatsiyasining mazmuni	Debet	Kredit	Summasi
1	Xom ashyo, material QQS bilan (QQSni o'z ichiga olgan holda) sotib olindi	1010	6010	112 mln.
2	Xom ashyo, material bilan sotib olingandagi kiruvchi QQS aks ettirildi.	4410	6010	12 mln.
3	Mahsulot (tovar, xizmat) QQS bilan (QQSni o'z ichiga olgan holda) sotilganda tushum aks ettirildi	4010	9010	168 mln.
4	Sotilgan mahsulotdan QQS hisoblab ajratildi	9010	6410	18 mln.
5	Byudjetga to'lanishi kerak bo'lgan QQS aks ettirildi.	6010	4410	6 mln.
6	Byudjetga QQS summasi o'tkazildi (pul mablag'i orqali)	6410	5110	6 mln.

Misol uchun, korxona xom ashyo va materiallarni 100 mln so'mlik qiymatda sotib olgan bo'lsa, amaldagi 12 foizlik stavka bo'yicha kiruvchi QQS 12 mln so'mni tashkil etadi va yetkazib beruvchiga jami 112 mln so'm to'lanadi. Xuddi shu korxona mahsulotni 150 mln so'mga sotgan bo'lsa, chiquvchi QQS 18 mln so'mni tashkil etib, xaridordan jami 168 mln so'm tushum tushadi. Chiquvchi va kiruvchi QQS o'rtasidagi farq ($18 \text{ mln} - 12 \text{ mln} = 6 \text{ mln}$ so'm) korxonaning byudjet oldidagi soliq majburiyatini tashkil etadi va aynan shu summa byudjetga o'tkaziladi.

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Ushbu provodkalar orqali korxonada har bir xo'jalik operatsiyasi bo'yicha soliq majburiyati aniq va tizimli tarzda hisobga olib boriladi, natijada davr yakunida byudjetga to'lanishi lozim bo'lgan QQS summasi to'g'ri shakllantiriladi.

4. QQS hisobini yuritishning ahamiyati va amaliyotdagi muammolari

QQS buxgalteriya hisobining ahamiyati quyidagi jihatlarda namoyon bo'ladi:

- Soliq intizomini ta'minlash — hisobning aniq yuritilishi soliq majburiyatlarining o'z vaqtida va to'liq bajarilishiga xizmat qiladi.
- Moliyaviy hisobotning ishonchliligi — QQS bo'yicha noto'g'ri hisob-kitob moliyaviy hisobotning boshqa ko'rsatkichlariga ham salbiy ta'sir ko'rsatadi.
- Naqd pul oqimini boshqarish — kirish va chiqish QQSi o'rtasidagi farqni oldindan bilish korxonaga moliyaviy resurslarni rejalashtirishda yordam beradi.
- Soliq nazorati uchun asos — to'g'ri yuritilgan hisob soliq organlari tomonidan o'tkaziladigan tekshiruvlar jarayonini osonlashtiradi.

Amaliyotda esa quyidagi muammolar ko'p uchraydi: hisob-fakturalarning o'z vaqtida rasmiylashtirilmasligi, kirish va chiqish QQSini ajratishda xatoliklarga yo'l qo'yilishi, avtomatlashtirilgan buxgalteriya dasturlaridan to'liq foydalanilmasligi hamda buxgalter xodimlarning malaka darajasining yetarli emasligi. Bunday muammolarni bartaraf etish uchun korxonalarda ichki nazorat tizimini kuchaytirish va buxgalter kadrlarning malakasini muntazam oshirib borish zarur.

Xulosa

Xulosa qilib aytganda, qo'shilgan qiymat solig'i buxgalteriya hisobi xo'jalik yurituvchi subyektlar faoliyatining muhim yo'nalishlaridan biri bo'lib, uning to'g'ri tashkil etilishi korxonaning soliq intizomiga rioya qilishi, moliyaviy barqarorligini ta'minlashi va davlat byudjeti daromadlarining shakllanishiga o'z hissasini qo'shishi mumkin. Shu sababli, korxonalarda QQS hisobini yuritish jarayonini takomillashtirish, zamonaviy avtomatlashtirilgan tizimlardan foydalanish va buxgalter xodimlarning bilim darajasini oshirib borish dolzarb vazifalardan biri bo'lib qolmoqda.

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