CONCEPT OF INFECTION. INFECTION PROCESS. METHODS OF DIAGNOSIS OF INFECTIOUS DISEASES.

Shukurova Shoxina Tuyg'unovna
Teacher of the "General Sciences" department of the Asian International University
Bukhara Uzbekistan
E-mail:shukurovashoxinatuygunovna@oxu.uz
Student of Asia International University
Qambarova Zarina Zakirovna
zakirovnazarina016@gmail.com

Key words: *Bacteria, parasites, pathogen, invasion, somatic, genetic, microorganisms, protozoa, immune system, pertussis, wound, antibody, in vitro.*

Abstract: This article provides detailed information about infection, infectious process and methods of diagnosing infectious diseases. Infection is explained as the presence of harmful microorganisms (bacteria, viruses, fungi, parasites) in the body and the system of diseases caused by them. The development of the infectious process and the formation of the disease have been discussed. It also provides information on basic methods, laboratory studies, and clinical signs used to diagnose infectious diseases.

Introduction. Infection (lat. infestion - infect, introduce something from the outside) means a process that occurs under the influence of microorganisms that enter the human, animal, or plant organism. Now this term has many meanings. For example, pathogenic microorganisms and the conditions and diseases that occur under their influence are also called infections. Infections are a group of diseases that are dangerous to human health and are widespread throughout the world.

Infection is the process of entering the human body and carrying out its activities by microorganisms or pathogens (bacteria, viruses, fungi, parasites). Infectious processes can cause various clinical symptoms, such as fever, cough, pain, etc. The diagnosis of infectious diseases is the main stage of the correct assessment of the patient's condition and effective treatment.

Main part. Infection and the infectious process. Infection is the process by which microorganisms enter the human body, multiply there and have a harmful effect. Infection can enter the human body in various ways. It is transmitted through airborne droplets, contact, food, water or animals. The most common pathogens are bacteria, viruses, fungi, and parasites. The infection process includes several stages:

1-Introduction of pathogenic microorganisms:

After microorganisms enter the body, they stick to a specific place and the processes of growth begin.

2-Multiplication and impact on the immune system: Microorganisms multiply and begin to fight against the body's immune system. During this process, toxins and other harmful substances may be released.

3-Immune response: The immune system is activated to protect the body, but in some cases, the infection spreads too quickly and can lead to severe disease.

Infectious process is a set of physiological and pathological changes caused by pathogenic microbes on the macroorganism. Such processes, which are caused by protozoa, are called "invasions". The infectious process is caused by the following factors:

a) pathogenic microbes and the products they produce during their life activity;

b) the state of the macroorganism during the development of the process;

g) develops under the influence of social factors.

Infectious diseases: Infectious diseases differ from other diseases (somatic, genetic) by many features. First of all, infectious diseases are caused by special pathogenic microbes, after the microbe enters the body, the disease does not manifest immediately, but a certain latent period passes. It can be transmitted from a sick person to healthy people and spread over large areas. Due to the development of a specific defense process in the macroorganism against each pathogen, infectious diseases go through a cycle.

Infectious disease pathogens enter the body and the periods of disease development. Depending on the source of infection, anthroponosis, anthropozoonosis, zoonoses and sopronose infections are distinguished. Anthroponous infections (typhoid, smallpox, cholera, measles, wounds, mumps, etc.) are transmitted only to humans, where the source of infection is a patient or a carrier of bacteria. Anthroponosis infections (tuberculosis, anthrax, brucellosis, rabies, etc.) are transmitted to humans and animals. In this case, sick and carrying bacteria and animals serve as the source of infection. Zoonotic infections (fowl and canine distemper) only animals become ill. In sopronosis infections, the external environment is the source of the disease (water, air, soil, etc.). For example, botulism, tetanus and gas gangrene, leptospirosis.

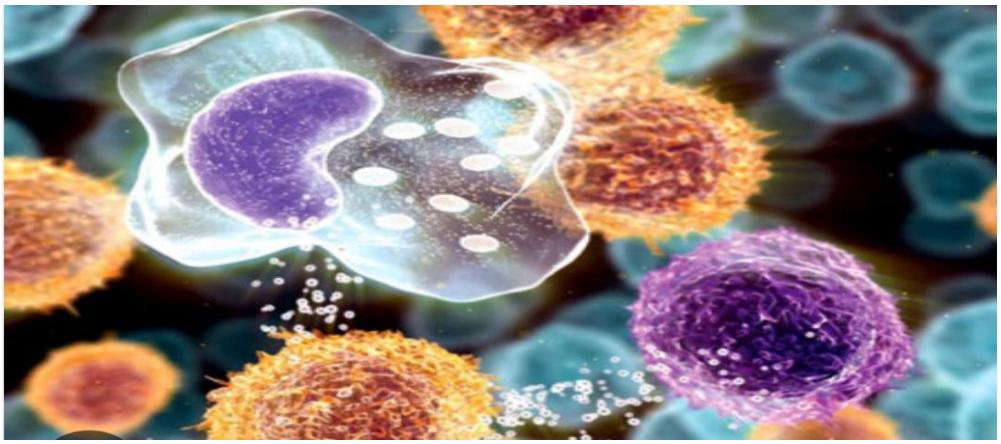
Research: Infectious diseases are caused by the process of infection and they are different

it can:

1- Air-droplet and air-dust route (whooping cough, measles, influenza, tuberculosis, etc.).

2-Gastrointestinal. The causative agent of the disease enters through the mouth (typhoid fever, paratyphoid fever A and B, cholera, dysentery, etc.).
3-Communicative route and it is of 2 types:
a) through direct contact (sexually), an example of which is venereal diseases (syphilis, gonorrhea, AIDS);
b) indirect, in which the following factors (water, air, soil, food, the patient's dishes, towels, clothes, etc.) are important.
4-Transmissible route - the transmission of the pathogen from a sick person to a healthy person through various insects. These include malaria, leishmaniasis, rash and recurrent sweating.
5-Parenteral route - transmission through incompletely sterilized medical instruments (AIDS, hepatitis B and C, syphilis, etc.).
6-Vertical route. Diseases transmitted from mother to child (AIDS, syphilis, syphilis, hepatitis B and C, etc.).

Infectious diseases usually manifest with certain clinical signs and symptoms. Depending on the type of illness, these symptoms vary, but common symptoms include fever, body aches, cough, sweating, weakness, and more.



Methods of diagnosing infectious diseases: There are several methods of diagnosing infectious diseases:
Clinical Examination: A preliminary diagnosis can be made based on the patient's history, evaluation of symptoms, and physical examination.

Laboratory Tests: Laboratory tests play an important role in the accurate diagnosis of infectious diseases. These methods include:
1-Microscopy: Seeing pathogenic microorganisms with a microscope.
2-Cultural method: Reproduction and analysis of microorganisms in laboratory conditions.
3-Serological methods: Detection of infection by detection of antibodies and antigens.
4-PCR (Polymerase chain reaction):
DNA and RNA analyzes for accurate and rapid diagnosis of infectious diseases.

5- X-ray and ultrasound examinations:

Visual inspection and assessment of certain infections. Despite the many diagnostic methods, the most accurate method remains microbiological, that is, taking samples of microorganisms and identifying them in different ways. In this case, if food is used to grow bacteria and fungi, then cell culture is used to grow intracellular parasites (chlamydia, viruses). The downside of this method is that it takes several days for microorganisms to germinate. But now bacteriological analyzers are being produced in the world, with the help of these devices it is possible to identify bacteria and fungi in 18-24 days.

Clinical and biochemical examinations are widely used in the diagnosis of infectious diseases. For example, general analysis of blood, cerebrospinal fluid, urine and feces, determination of enzymes and bilirubin in hepatitis, etc. are very important. These methods are also very important in determining the course of the infectious process.

Diagnostic devices instantly determine the condition of various organs and tissues of a person. Although the microorganism itself is not identified in this method, it is possible to study the pathological processes that occur in the body under its influence.

Polymerase chain reaction (PCR) is one of the most modern in vitro methods that genetics and biotechnology offered to medicine in the 80s of the XX century. Using this method, microorganisms and their nucleic acid are detected, because living organisms are very unique in terms of their DNA or RNA structure. PCR is currently one of the most accurate, sensitive and rapid methods, with which it is possible to detect pathogenic microorganisms even in the latent period of the disease.

Conclusion: In recent years, much attention has been paid to the methods of diagnosis and treatment of infectious diseases. New diagnostic methods and drugs are being developed to effectively fight against infectious diseases. The improvement of analytical methods and the possibilities of rapid diagnosis, detection and treatment of diseases in the early stages have been significantly improved. At the same time, global research on combating epidemics and pandemics continues.

Infectious diseases are a category of diseases caused by the introduction of infectious agents (microbes, viruses, parasites, etc.) into the body and interaction with it. The infectious process includes a number of stages, such as the onset, development, spread of the disease and the body's response. It is important to make a diagnosis on the basis of the patient's clinical condition, laboratory and instrumental studies. For infectious diseases, accurate and early diagnosis is an important factor in the treatment and recovery of the patient.

Correct diagnosis is important in determining the type and extent of infection, as well as in developing an effective treatment plan.

Important steps such as prevention of infectious diseases, taking preventive measures, preventing the development of diseases through antibiotics and vaccines, and modern approaches to the management of the infectious process are important. At the same time, a global increase in infection control and treatment is required, as the global spread of some infections poses a threat to life-threatening diseases.

References

1. Shukurova, S. (2024). Optimizing synergies: Effective strategies for integrating economic and environmental interests in sustainable development. In E3S Web of Conferences (Vol. 587, p. 04007). EDP Sciences.
2. Tuyg'unovna, S. S. (2024). MEDICINAL PLANTS THAT ARE WIDELY USED IN NATURE, RICH IN VITAMINS. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(3), 242-247.
3. Tuyg'unovna, S. S. (2024). THE PROCESS OF PACKAGING MEDICINAL PLANTS. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(3), 248-256.
4. Tuyg'unovna, S. S. (2024). ABOUT USEFUL MEDICINAL PLANTS RICH IN LIPIDS USED IN MEDICINE. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(3), 235-241.
5. Tuyg'unovna, S. S. (2024). TARKIBIDA EFIR MOYLAR BO'LGAN DORIVOR O'SIMLIKLAR. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 4(3), 164-167.
6. Tuyg'unovna, S. S. (2024). MEDICINAL PLANTS CONTAINING ESSENTIAL OILS. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 41(4), 62-69.
7. Tuyg'unovna, S. S. (2024). TARKIBIDA ALKALOIDLAR BO'LGAN DORIVOR O'SIMLIKLAR. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 41(4), 70-77.
8. Tuyg'unovna, S. S. (2024). CULTIVATION OF MEDICINAL PLANTS AND FORMS OF PREPARATION. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 4(5), 71-75.
9. Tuyg'unovna, S. S. (2024). SYSTEMATIC ANALYSIS OF MEDICINAL PLANTS. *Лучшие интеллектуальные исследования*, *19*(5), 159-164.
10. Tuyg'unovna, S. S. (2024). DORIVOR O'SIMLIKLARNING SISTEMATIK TAHLILI. TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI, 4(4), 180-184.
11. Tuyg'unovna, S. S. (2024). BAKTERIYALAR GENETIKASI. BAKTERIYALARDA GENETIK ALMASHINUV MIKROORGANIZMLARNING O 'ZGARUVCHANLIGI. *MASTERS*, *2*(5), 183-192.

12. Tuyg'unovna, S. S. (2023). USEFUL PROPERTIES OF THE MEDICINAL PRODUCT AND USE IN MEDICINE. *Gospodarka i Innowacje.*, *40*, 179-181.
13. Tuyg'unovna, S. S. (2023). CHEMICAL COMPOSITION OF MEDICINAL PLANTS AND CLASSIFICATION. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(11), 33-35.
14. Shukurova, S. (2023). DORIVOR ACHCHIQ BODOM URUG'ININGSHIFOBAXSHLIGI, DORI TAYYORLASH USULLARI. *Центральноазиатский журнал образования и инноваций*, *2*(10 Part 3), 116-120.
15. Tuyg'unovna, S. S. (2023). DORIVOR NA'MATAKNING FOYDALI XUSUSIYATLARI VA TIBBIYOTDA QO'LLANILISHI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *3*(9), 11-13.
16. Shukurova, S. (2023). DORIVOR O'SIMLIKLARNING KIMYOVIY TARKIBI VA TASNIFI. *Центральноазиатский журнал образования и инноваций*, *2*(11), 5-10.
17. Shukurova, S. (2023). KIYIKO'T VA YALPIZDAN FOYDALANISH USULLARI. *Центральноазиатский журнал образования и инноваций*, *2*(12), 171-177.
18. Shukurova, S. (2024). TARKIBIDA GLIKOZIDLAR BO'LGAN DORIVOR O'SIMLIKLAR. *Центральноазиатский журнал образования и инноваций*, *3*(1), 217-222.
19. Tuygunovna, S. S. (2023). Ways to Use Mint and Peppermint. *EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY*, *3*(12), 20-23.
20. Tuygunovna, S. S. (2023). Medicinal Plants Containing Glycosides. *EUROPEAN JOURNAL OF BUSINESS STARTUPS AND OPEN SOCIETY*, *3*(12), 24-27.
21. Tuyg'unovna, S. S. (2024). DORIVOR O'SIMLIKLAR XOMASHYOSINI ISHLATISHGA TAYYORLASH. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 123-132.
22. Tuyg'unovna, S. S. (2024). TARKIBIDA LIPIDLAR BO'LGAN DORIVOR O'SIMLIKLAR. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 133-140.
23. Tuyg'unovna, S. S. (2024). TARKIBIDA VITAMINLAR BO'LGAN DORIVOR O'SIMLIKLAR. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 141-147.
24. Tuyg'unovna, S. S. (2024). ABOUT USEFUL MEDICINAL PLANTS RICH IN LIPIDS USED IN MEDICINE. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(3), 235-241.
25. Tuyg'unovna, S. S. (2024). SYSTEMATIC ANALYSIS OF MEDICINAL PLANTS. *Лучшие интеллектуальные исследования*, *19*(5), 159-164.

26. Ostonova, G. (2023). ICHKI SEKRETSIYA BEZLARI FIZIOLOGIYASI. *Центральноазиатский журнал образования и инноваций*, *2*(10 Part 3), 110-115.
27. Rashidovna, O. G. (2023). PHYSIOLOGY OF THE ENDOCRINE GLANDS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(11), 1-6.
28. Ostonova, G. (2023). TURLI XIL STRESS OMILLARDAN GARMSEL OMILINING G ‘O ‘ZA BARG SATHIGA TA’SIRI. *Центральноазиатский журнал образования и инноваций*, *2*(11 Part 2), 107-111.
29. Rashidovna, O. G. (2023). EFFECT OF SOILS WITH DIFFERENT LEVELS OF SALINITY ON COTTON GERMINATION IN FIELD CONDITIONS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(12), 116-119.
30. Rashidovna, O. G. (2023). THE EFFECT OF THE HARMSEL FACTOR ON THE LEVEL OF COTTON LEAVES FROM VARIOUS STRESSORS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(12), 105-107.
31. Ostonova, G. (2023). DALA SHAROITIDA TURLI DARAJADA SHO ‘RLANGAN TUPROQLARNING G ‘O ‘ZA UNUVCHANLIGIGA TA’SIRI. *Центральноазиатский журнал образования и инноваций*, *2*(12), 206-211.
32. Ostonova, G. (2024). TURLI DARAJADA SHO ‘RLANGAN TUPROQLARNING G ‘O ‘ZANING O’SISH VA RIVOJLANISH DINAMIKASIGA TA’SIRI. *Центральноазиатский журнал образования и инноваций*, *3*(1 Part 2), 73-80.
33. Rashidovna, O. G. (2024). DALA SHAROITIDA TURLI DARAJADA SHO ‘RLANGAN TUPROQLARNING G ‘O ‘ZANING ILDIZ SISTEMASIGA TASIRI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 186-193.
34. Rashidovna, O. G. (2024). THE EFFECT OF DIFFERENT DEGREES OF SALINITY ON THE ROOT SYSTEM OF COTTON. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 194-201.
35. Rashidovna, O. G. (2024). OF SOILS WITH DIFFERENT DEGREES OF SALINITY GROWTH AND DEVELOPMENT DYNAMICS OF COTTON EFFECT. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 167-176.
36. Rashidovna, O. G. (2024). OF SOILS WITH DIFFERENT DEGREES OF SALINITY GROWTH AND DEVELOPMENT DYNAMICS OF COTTON EFFECT. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 167-176.

37. Rashidovna, O. G. (2024). ФИЗИОЛОГИЯ ЖЕЛЕЗ ВНУТРЕННЕЙ СЕКРЕЦИИ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(3), 171-179.
38. Rashidovna, O. G. (2024). ВЛИЯНИЕ ПОЧВ С РАЗНЫМ УРОВНЕМ ЗАСОЛЕНИЯ НА ВСХОЖЕСТЬ ХЛОПЧАТНИКА В ПОЛЕВЫХ УСЛОВИЯХ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(3), 163-170.
39. Rashidovna, O. G. (2024). ZANJABIL (ZINGIBER OFFICINALE) NING DORIVORLIK XUSUSIYATLARI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *4*(3), 269-272.
40. Rashidovna, O. G. (2024). ВЛИЯНИЕ ФАКТОРА ГАРМСЕЛЯ НА УРОВЕНЬ ЛИСТЬЕВ ХЛОПЧАТНИКА ОТ РАЗЛИЧНЫХ СТРЕССОРОВ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *39*(3), 155-162.
41. Rashidovna, O. G. (2024). ZA'FARON (CROCUS SATIVUS) NING DORIVORLIK XUSUSIYATLARI. *TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI*, *4*(4), 151-156.
42. Rashidovna, O. G. (2024). Medicinal Properties of Mint (Mentha) Plants. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(5), 133-139.
43. Rashitova, S. (2023). USE OF INTERACTIVE METHODS IN CHEMISTRY. International Bulletin of Medical Sciences and Clinical Research, 3(10), 115-119.
44. Rashitova, S. (2023). BENTONIT GIL KUKUNINI SORBSION XOSSASINI KIMYOVIY USULDA FAOLASHTIRISH. Центральноазиатский журнал образования и инноваций, 2(10Part 3), 98-102.
45. Shukhrat, R. S. (2023). PROCUREMENT OF SORBENTS WITH HIGH SORPTION
a. PROPERTIES AND WASTEWATER TREATMENT ON THEIR BASIS. EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE, 3(12), 75-76.
46. Рашитова, Ш. (2023). ИСПОЛЬЗОВАНИЕ АКТИВИРОВАННОГО СОРБЕНТА ДЛЯ ОЧИСТКИ СТОЧНЫХ ВОД. Центральноазиатский журнал образования и инноваций, 2(12), 135-140.
47. Rashitova Shahnoza Shuhrat qizi, NITROFURAL MOLEKULASINING NITROREDUKTAZA FERMENTI BILAN MOLEKULYAR DOKINGI , TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI: Vol. 4 No. 4 (2024): ТАЪЛИМ ВА РИВОЖЛАНИШ ТАҲЛИЛИ ОНЛАЙН ИЛМИЙ ЖУРНАЛИ

48. Rashitova Shahnoza Shuhrat qizi. (2024). “NOORGANIK BIRIKMALARNING MUHIM SINFLARI” MAVZUSINI O’QITISHDA TEXNOLOGIK USULLARDAN FOYDALANISH . ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 38(7), 95–101.
49. Rashitova Shahnoza Shuhrat qizi. (2024). BUFER SISTEMALARNING VA ULARNING TURLARINI INSON ORGANIZMGA TA’SIRINI O’RGANISH . ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 38(7), 87–94.
50. Jo’rayeva, G. (2024). COMBINATION OF DIABETES AND METABOLIC SYNDROME. *Modern Science and Research*, *3*(12), 691-696.
51. Jo’rayeva, G. (2025). RISK FACTORS FOR THE DEVELOPMENT OF CLIMACTERIC DISORDERS IN WOMEN WITH THE METABOLIC SYNDROME. *Modern Science and Research*, *4*(1), 1090-1092.
52. Rajabova Oygul Islomovna.(2024). VIRUSLI GEPATITLAR VA TUG‘RUQDAN KEYINGI ERTA QON KETISHLARNI KAMAYTIRISHNING YANGI TEXNOLOGIYALARI. ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ, 39(5), 99–106.
53. Rajabova Oygul Islomovna .(2024). A Comparative Analysis of the Effectiveness of Vaginal Progesterone, Cervical Pesar, and Their Combination for Preventing the Risk of Premature Labor in High-Risk Pregnant Women BEST JOURNAL OF INNOVATION IN SCIENCE, RESEARCH AND DEVELOPMENT, 3(3), 440-446.
54. Rajabova Oygul Islomovna.(2024). MODERN CONCEPT OF RECURRENT VAGINAL INFECTIONS IN WOMEN OF REPRODUCTIVE AGE, 3(04), 128-131.
55. Rajabova Oygul Islomovna.(2024). METHODS OF PHARMACOTHERAPEUTIC TREATMENT OF ABNORMAL UTERINE BLEEDING IN GIRLS, 3(5),193-197
56. Rajabova Oygul Islomovna.(2024). Method Stopping Atonic Bleeding From the Uterus after Childbirth Using Balloon Tamponade **International Journal of Alternative and Contemporary Therapy with U.S. ISSN 2995-5378** In Volume 2, Issue 9 (2024)
57. Rajabova Oygul Islomovna.(2024). Tactics for carrying women at high risk of recurrent miscarriage. New renaissance journal ResearchBib IF-2023: 11.01, ISSN: 3030-3753, Valume 1 Issue 8 Pp:509-514
58. Islomovna, R. O. CHARACTERISTICS OF UROGENITAL TRACT MICROBIOCENOSIS IN WOMEN WITH NON-DEVELOPING PREGNANCY.