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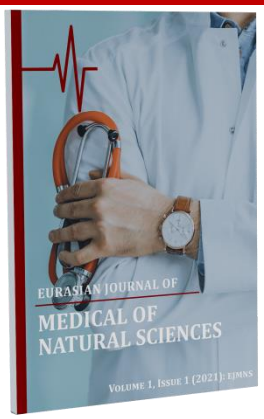

HYGIENIC AND ECOLOGICAL SAFETY OF SOIL IN THE CONDITIONS OF UZBEKISTAN

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ABSTRACT

Introduction. Recently, the problem of environmental protection and public health in most countries, including Uzbekistan,has become particularly significant due to the rapid development of industry and agriculture, population growth, and the increased impact of adverse natural and anthropological factors.One of the consequences of these negative factors is pollution of the environment,especially the soil, by harmful chemicals and microorganisms, which have a detrimental impact on the population's health.Therefore , when conducting scientific research of an ecological and sanitary-hygienic nature and organizing soil protection, it is necessary to use common approaches and methodological techniques developed by science and approved by state sanitary supervision bodies.

The aim of the research was to provide an ecological and hygienic assessment of the current levels of soil pollution in the territory of the city of Tashkent and its possible adverse impact on the estate of public health.

Material and method of ICA research. The research also included the study of the results of laboratory soil analyses performed by the departments of the Tashkent City Center for State Sanitary and Epidemiological Supervision (SES) in the period of 2016-2022 , the determination of risk factors for the population, the specific weight of non-standard soil samples ,and calculations of correlation coefficients between the indicators of morbidity of the population and the levels of detected soil contamination.

Research results. During the research, special attention was paid to identifying the levels of soil contamination in residential areas of the city of Tashkent and territories of children's institutions that are most dangerous in terms of sanitary and epidemic conditions. It turned out that in residential areas, the proportion of non-standard soil samples for the studied period ranged from 12.4% to 21.4% for bacteriological indicators and from 0.06% to 0.2% for the presence of helminthis; in the territories of children's institutions, these figure's ranged from 8.6% to 18.9% and from 0.07% to 0.08%. Soils of different types of land use on the territory of the city differed in the nature of contamination, the specific weight of samples that were non-

standard in chemical and bacteriological parameters, and the content of helminthis. Significant differences in the levels of soil contamination were found in different administrative districts of the city. In the course of carrying out scientific research, special attention was paid to identifying relationships between the levels of soil contamination in residential areas and territories of children's institutions of the city and the indicators of morbidity of the population (with the calculation of correlation coefficients). Data on the morbidity of the population were processed based on the analysis of "Statistical materials on the activities of healthcare institutions of the Republic of Uzbekistan" (issues for the last five years). Time series describing the levels of soil contamination in the city of Tashkent were represented by indicators of the specific weight of non-standard soil samples of different types of land use as a percentage, calculated according to the reporting data of the Tashkent City Center for State Sanitary and Epidemiological Supervision (Form No. 18) for 2016-2022. . Data on soil contamination of 5 types were analyzed land use (on the territories of industrial facilities, in places where agricultural products are grown, in places where toxic waste is stored, on the territories of residential areas and children's institutions) by such indicators as total pollution, pesticides, heavy metals, bacteriological contamination, the presence of helminthis, radiological pollution. In the subsequent development, indicators of total and bacteriological soil contamination were taken by the specific weight of non-standard soil samples as a percentage. When studying the causal relationships between the levels of morbidity of the population of the city of Tashkent and the degree of soil contamination in residential areas and in the territories of children's institutions, with the calculation of correlation coefficients between intensive indicators of population morbidity and the specific weight of non-standard soil samples as a percentage, direct positive relationships were established in 10 out of 22 compared time series for the period 2014-2018(table).

Table - Correlation coefficients that characterize the presence of lines relationships between disease rates and soil pollution in the city of Tashkent (2016-2022)

Compared of disease rate indicators of the Tashkent population	Of soil contamination in residential areas	
	total specific weight of non-standard soil samples by number,%	specific weight of non-standard soil samples by bacterial indicators, %
1. Total morbidity of the adult population of Tashkent (per 1000)	0.96	0.06
2.Total morbidity of children under 14 years of age (per 1000)	0.93	0.3
3. Morbidity of the population with digestive diseases of the digestive system (per 1000)	0.91	0.43
4. Morbidity of the population with diseases of the genitourinary system (per 1000)	0.72	-

5.The incidence of respiratory diseases in the population(per 1000)	is	-
6. The incidence of infectious and parasitic diseases (per 1000)	is 0.35	-
7.Typhoid diseases (per 100,000perpopulation)	--	-
8.Paratyphoid diseases (per100,000population)	--	-
9. Dysentery diseases (per100,000population)	0.24	0.33
10.Diseases with the amount of OKZ (per100,000population)	--	-
11. Hepatitis A diseases (per100,000population)	--	-

The results of the research allow us to consider high indicators of the total share of non-standard soil samples in residential areas of the city of Tashkent as a significant risk factor for the growth of general morbidity in the city's population, diseases of such classes as diseases of the digestive system, genitourinary system, infectious and parasitic diseases (primarily dysentery). A certain risk factor is also soil contamination in the territories of preschool institutions.

Research materials confirm the need for special attention of state sanitary and epidemiological surveillance authorities epidemiological to the levels of soil contamination of the above-mentioned types of land use, including laboratory monitoring of their sanitary condition.

Conclusions:

1. When conducting research related to the study and assessment of the levels of soil contamination in populated areas, their danger to public health, the results of soil analysis selected in residential areas and from the territories of children's institutions should be considered priority and most significant from sanitary and epidemiological positions.
2. High indicators of the specific weight of non-standard soil samples (as a percentage of the total number of samples) taken in residential areas and on the territories of children's institutions are significant risk factors for increasing the incidence of diseases in the population. how direct relationships are established between these phenomena (calculated values of correlation coefficients for the total number of non-standard samples from 0.24 to 0.96).

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