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ASSESSMENT OF SANITARY AND HYGIENIC CONDITIONS OF WATER, AIR AND SOIL IN YAKUTSK AND ALDAN, KHANGALASSKY AND MEGINO-KANGALASSKY REGIONS OF YAKUTIA

The article presents the results of a study of condition drinking water sources, atmospheric air, and soil pollution in Yakutsk, Aldansky, Khangalassky and Megino-Kangalasskiy districts during the 2006-2012. The most favorable situation for compliance with microbiological water sources of centralized water supply has developed in Aldansky region, where the number of non-standard samples was the least ($7.9 \pm 0.7\%$). The highest rate of non-standard water samples was observed in Khangalassky region ($32.3 \pm 2.6\%$). A high proportion of water samples on the non-standard chemical indicators was identified in Khangalassky and Megino-Kangalassky regions and the lowest - in the Aldansky region. Samples of soil, non-standard sanitary-chemical parameters were also detected only in the Aldansky region ($0.2 \pm 0.1\%$) and Yakutsk ($6.4 \pm 0.5\%$). On these territories there is an unfavorable situation for soil compliance to microbiological standards.

Keywords: environment, sources of centralized water supply, atmospheric air, soil, pollution, sanitary-chemical indicators.

INTRODUCTION

One of the most important differences of modern civilization is an expressed change of human habitat, unfavorable transformation of its components-watery (contaminated wastes), atmospheric (air pollution), soil (heavy metals) which have influenced on population's health.

The objective of this research work is to evaluate the condition of drinking water sources, atmospheric air, soil pollution in different districts of the Sakha Republic (Yakutsk, Aldansky, Khangalassky and Megino-Kangalasskiy districts during the 2006-2012).

MATERIALS AND RESEARCH METHODS

The article presents the results of a study of condition of drinking water sources, atmospheric air, soil pollution in Yakutsk, Aldansky, Khangalassky and Megino-Kangalasskiy districts during the 2006-2012, using statistic dates form#18.

RESULTS AND DISCUSSION

Aldansky region is an industrial territory, Megino-Kangalasskiy is a rural one, Khangalassky is a rural and industrial one. There were taken numerous samples of centralized water supply, atmospheric air and soil for compliance with microbiological parameters, sanitary-chemical indicators and others.

The water sources were represented with surface and underground water supply. The main reason of water pollution has become absence of sanitary keeping zone. The favorable situation has been shown in Aldansky area where only 18,2% of water supply do not have sanitary keeping zone.

The analysis of long-term dynamics of frequency of identifying non-standard water samples on sanitary –chemical indicators showed that during the second shift of the analyzed period, starting since 2012, there was a development of specific gravity of water samples.

The most unfavorable area on the level of air pollution are Aldansky and Yakutsk territories. Non-standard samples of atmospheric air were found near highways in living and industrial zones.

Results of laboratory monitoring of soil condition identified non-standard soil samples by sanitary-chemical indicators in Aldansky district and Yakutsk.

Non-standard soil samples by microbiological indicators were observed there as well. This matter of fact increased average index about the region.

The samples taken in Yakutsk did not suit sanitary standards in containing heavy metals and pesticides near industrial, transport and green zones.



The non-standard soil samples by microbiological indicators were set in all the zones where the selection was held. The highest rate there was noticed in a residential Zone, including kindergarten and playgrounds in Aldansky district-27,5%; in Megino-Kangalassky district-in a zone of industrial influence and transport highways(20%); in Yakutsk city-in territories of cultivated production(80%),in zone of sanitary keeping water sources (71,4%) and territories of cattle complexes (50,0%).

Analysis of soil quality by parasite parameters cleared that Yakutsk had non-standard weight of soil samples in 2007 and later there was tendency to releasing.

CONCLUSION

This research work has displayed that in Yakutia for the period of 2006-2012 each ninth water sample did not suit standards on microbiological indicators, each water sample-by sanitary-chemical indicators. Among the three researched territories the most favorable situation concerning water samples by microbiological parameters was in Aldansky region, but the low report in Khangalassky. By sanitary-chemical parameters there were Khangalassky and Megino-Kangalassky and the low rate in Aldansky. The air pollution there was watched in Aldansky and Yakutsk territories. In rural areas of Aldansky, Khangalassky and Megino-Kangalassky districts there were not found any harmful substances. The unfavorable situation of soil samples by sanitary-chemical and microbiological parameters were in Aldansky district and Yakutsk.

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