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RETROSPECTIVE ANALYSIS OF AIR POLLUTION IN THE CITY OF MOGILEV WITHIN THE PERIOD OF 2005–2014

Environmental pollution, especially air, industrial emissions, and motor vehicles causes growing concern in many countries in recent years. The main problems associated with air pollution relate to the harmful effects on health. According to the World Health Organization, air pollution is the single and the most important factor in environmental risk to health in European Region.

The sources of air pollution of the city of Mogilev are the enterprises of thermal energy, chemical industry, iron and steel industry, housing and communal services and road transport, which account for over 75% of emitted pollutants. Enterprises are located in different areas of the city and constitute compact industrial zones. The location of many enterprises on hill sites on the windward side towards the residential areas and the city center leads to an increase in the impact of emissions on the population.

The purpose of the research is to give hygienic characteristics of the environment and to assess the potential impact on public health of Mogilev.

The concentrations of main pollutants (accumulated particulate pollutants, sulfur dioxide, carbon monoxide, nitrogen oxide and dioxide), as well as prioritized and specific ones (formaldehyde, ammonia, phenol, hydrogen sulfide, carbon disulfide, and methanol) are identified in the atmosphere of the city. The retrospective analysis of air pollution for the period 2005–2014 by the substances such as formaldehyde, nitrogen dioxide, carbon disulfide, phenol, carbon monoxide, particulate matters, ammonia, and hydrogen sulfide was carried out in the work.

Thus, over the study period in the city of Mogilev the average annual concentrations of basic and specific pollutants remained at a sustainable low level and were below the hygienic standards. According to stationary observations of the whole city over the study period, only the average annual concentrations of phenol and carbon oxide slightly decreased. The levels of hydrogen sulfide and carbon disulfide pollution remain consistently low. Also the average annual concentrations of nitrogen dioxide and ammonia are at a sustainable and low level.

On the basis of the available data, the value of the complex index "P" was calculated, and the hygienic assessment of the air pollution degree was carried out. The total level of Mogilev atmosphere pollution was recorded within 1,152–1,879 conventional units, and it is rated as «admissible» (degree 1 of air pollution).

In accordance with population health gradation to the acceptable level of air pollution, the background incidence level corresponds to such grading of population health as «adaptation».

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PAINT POLIMORPHISM OF DOVE BLUSH IN MINSK

One of the most actual environmental issues is to identify the characteristics that contribute to the adaptation of certain species to anthropogenic territories. In this regard, a favorite object can be dove gray, synanthropic species, part of the population of which has lost the ability to exist outside man-made landscapes.

The purpose of research is to study the ecology of the rock-pigeon and its adaptive capacity to the conditions of the urban environment.The material was collected in the Frunze and Moscow district of Minsk from April to October 2016 Accounting and surveillance were carried out in places of bluish clusters of pigeons in the daytime. The paper used the method of allocation of painting morphs pigeons described in Vanichevoy LK (1997). Painting morphs were determined in 4803 specimens, based on the results processed by the usual method (Lakin, 1980).

It is well known that in nature morph is common for paint polymorphism of rock pigeon (Moskvitin, Ksents, 1982).

These personal data on polymorphism of rock pigeon in the urban environment in Minsk revealed significant differences in the frequencies of phenotypes between painting pigeons on all the 11 hospitals. Analysis of this material of paint polymorphism showed that the dominants are black and engraved morphs – 62.1±17.8, while the proportion of blue-gray doves is 22.3±13.9 (Khandogiy, 2016). Aberrants are outsiders. Their percentage of the other morphs varies from 15.6±3.4%. These differences in these administrative areas are insignificant, indicating that due to the relatively high mobility of pigeons the genetic exchange is provided between the groups of pigeons from different parts of the city.

As in Belarus, in the major cities of neighboring countries and all over the pace, the black and chased is the dominant morph of paint polymorphism : the Russian Federation - from 46 to 83% (Moskvitin, Ksents 1982, Salimov 2008, Losev, 2011, Likhachev, Romanov, 2015) Bashkortostan – 91–95% (Salimov, 2008), Udmurtia – 90–95% (Salimov, 2008), Moldova 39% (Moskvitin, Ksents, 1982), Turkmenistan – 33% (Moskvitin, Ksents, 1982). In these regions ,the blue-gray morph as the original form is ranging from 2 to 42%. All other morphs - brown, speckled, and melanistic range from 0% (Votkinsk, Udmurtia) to 47% (Chisinau, Moldova) (Moskvitin, Ksents, 1982).

Thus, in urban areas of Minsk in local groups of rock-pigeon synanthropic identified 5 main color morphs, of which 62.1% are black and embossed color morphs, 22.3% – to the white and 15.6% – to aberrants (brown, speckled, and mel-