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СБОРНИК ТЕЗИСОВ МЕЖДУНАРОДНОГО КОНГРЕССА

**VIII СЪЕЗД ВАВИЛОВСКОГО ОБЩЕСТВА
ГЕНЕТИКОВ И СЕЛЕКЦИОНЕРОВ,**
ПОСВЯЩЕННЫЙ 300-ЛЕТИЮ
РОССИЙСКОЙ НАУКИ И
ВЫСШЕЙ ШКОЛЫ



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(ВОГиС)

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300-летию российской науки и высшей школы»

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Ecological and genetic assessment of the consequences of the impact of anthropogenic pollution on the environment and public health

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Determining the concentration of polycyclic aromatic hydrocarbons (PAHs) as oil pollution and their metabolites as particular xenobiotics in the Kazakhstan side of the Caspian Sea is a pressing issue. At the work was established the accumulation of benz(a)pyrene in the muscle tissue of the studied water biota (fish, polychaetes and mollusks). It was found exceeding of the maximum permissible concentration (MPC) on the heavy metal content as the indicator organisms of shellfish body associated with oil (iron, lead, nickel). The data of dynamic observations over many years indicate the species and tissue specificity of the studied objects to the action of oil pollution, which represents a potential carcinogenic and mutagenic danger to biota and humans. Cytogenetic studies carried out using a chromosomal analyzing test. Was found cytogenetic abnormalities. A significant excess of the frequency of cells all types of aberrations obtained, than level of spontaneous aberrations. Reconnaissance radiation ecological survey of environmental objects was carried out by creating a system of sites for sampling of environmental objects (soil, vegetation, animals, surface, groundwater, bottom sediments) (at least 30 samples) of the territory of the landfill (polygon) and suburban settlements. Measurements of gamma radiation activity showed that the radiation level along the perimeter of the surveyed territory of the landfill and in neighboring settlements was within the range of 0.06–0.014 $\mu\text{Sv/h}$. Molecular genetic analysis using DNA repair genes XRCC1 and XRCC3 of the Mangystau region's population. In order to assess the condition of the organism's repair systems in the Mangystau region's residents, XRCC1 Arg194Trp (rs1799782) and XRCC3 Trp241Met (rs861539) gene polymorphisms were examined. A control group consisted of residents of the Almaty region. Results of molecular genetic studies of DNA of blood cells of people living in the zone of influence of the polygon revealed the spread of several mutant genotypes, as well as an increased risk of environmental diseases in persons with pronounced genome instability. These are hereditary degenerative diseases of the nervous system, congenital malformation and chromosomal diseases, which indicate a possible negative effect of chronic low-dose irradiation.