CHANGE OF GENOTOXICITY POTENTIAL OF ZMIINY ISLAND COASTAL WATERS, DEPENDING ON THE SEASON AND THE HEAVY METAL CONTENT

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The aim of research was to study sea water genotoxicity potential of Zmiiny island aquatorium in 2010. To evaluate the toxicity and mutagenicity of water samples we used *Salmonella typhimurium* TA98 and TA100 (Ames test). Change of quantitative values of sea water toxicity and mutagenic activity depending on the season and heavy metal contents was shown.

The maximum toxicity of samples was observed in May (death of 63.0% -62.0% of viable cells of *S. typhimurium* TA100). Against the backdrop of toxicity the recorded mutagenic activity was greater than control in 4.41 - 5.56 times.

The toxicity and mutagenicity of sea water in a bacterial test system *S. typhimurium* TA 98 in May were not registered.

In July the genotoxicity potential of the sea water for a test strain of *Salmonella typhimurium* TA 100 and TA 98 was not fixed.

The sea water taken near Zmiiny island in autumn (October) activated adverse biological responses (toxicity) in *Salmonella typhimurium* TA 100 test system only for some points. The mutagenic activity was absent completely.

In contrast, when we used the test system *S. typhimurium* TA 98 strong toxicity (death of 90,0% - 77,0% of viable cells) was recorded against the background mutagenic activity (3,67 - 4,87 relative units).

Application of the method of rank correlation (Pearson, Candela and Spearman) showed that the maximum effect on the sea water genotoxic potential changing throughout the year was produced chrome. The coefficients of the quantitative relationship between mutagenic activity and content of this metal in water was r *(pearson correlation)* fr^{om} -o.84 to +0,77, t *(Kendall correlation)* fr^{om} -o.54 to +0,33, p *(Spearman con-dcition)* from -0.73 to 0.40, depending on the season; between the toxicity and quantity of chromium: r *(pearson correlation)* from 0.49 to-0,32, T *(Kendall correlation)* from 0.36 to -0,32, p *(Spearman correlation)* from 0.41 to -0.13, depending on the season. The correlation coefficients between genotoxic measures and other metals as were studied.