

BIOASSAY AND ESTIMATION OF THE TOXICITY OF METALLOORGANIC COMPOUNDS IMPACTING THE POPULATION OF *PARAMECIUM CAUDATUM*

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The work is dedicated to the study of some groups of organometallic substances and their impact on aquatic organisms. It is used the method of toxicological bioassay of coordination compounds CMT-28 and CMA-18, which influence the *Paramecium caudatum* Ehrnbg ciliate in concentrations of 100, 10, 1, 0.1, 0.01 uM / L, compared to the prototype. Infusoria *Paramecium caudatum* is one of the most commonly used test-objects in laboratory research aimed at directly determining the toxicity of chemical compounds, which are used in toxicological medicine and ecotoxicological control.

The activity of substances has been evaluated after the character of toxicity of preparations (LT₅₀ and LC₅₀) and the activity of ciliated has been studied after the character of their viability and reproductive parameters (increasing or decreasing their numbers and reproductive rate).

The obtained experimental results regarding the reproductive peculiarities of invertebrates have been systematized. It has been shown that coordination compounds CMT-28 and CMA-18 at concentrations of 100 and 10 uM/L inhibit totally the growth and division of infusoria (Figure 1).

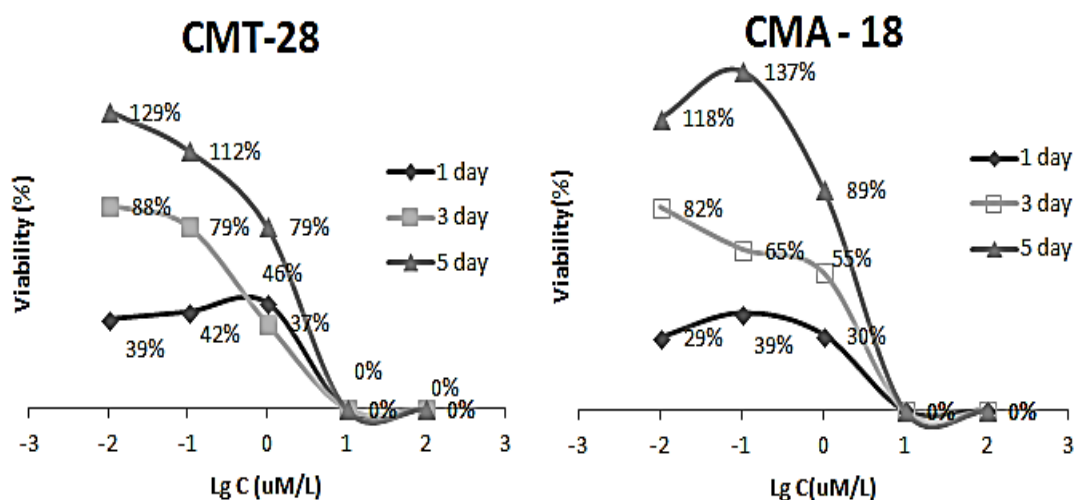


Figure 1. Inhibition of the *Paramecium caudatum* culture viability under the influence of coordination compounds CMT-28 and CMA-18.

As it results from the analysis of experimental data, within the concentrations of 1 to 0.01 uM/L the compounds CMT-28 and CMA-18 have a toxic activity relative to the *Paramecium caudatum* laboratory organisms, inhibiting partly the reproductive parameters of ciliated.

In the concentration range 0.01-10 UML, the values LC₅₀ (lethal concentration, 50%) and LT₅₀ (lethal time, 50%) have been calculated for substances CMT-28 and CMA-18. Thus, it has been obtained LC₅₀ = 0.46 uM/L for CMA-28 and LC₅₀ = 1.19 uM/L for CMT-18.

Hence, the CMA-18 is less toxic compared to CMT-28. The lethal time, LT₅₀, for the CMA-18, at the concentration of 1 uM/L, is the 3rd day, and LT₅₀ for CMT-28 at the concentration of 1 uM/L is the 2nd day. The results reported here attest the active stability of substances and absence of resistance of the test-object *Paramecium caudatum*.

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