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TOXIC EFFECTS OF SYNTHETIC DETERGENTS ON THE ORGANISM OF THE MOIIUSK PURPLE (PLANORBARIUS PURPURA)

In every house, in the bathroom or in the kitchen, we deal with daily things like shampoo, dishwashing liquid, soap, washing powders and detergent for cleaning difficult dirt and other things. Things we are accustomed to in our everyday life are called synthetic detergents. The first synthetic detergents for general use were produced by the Germans in the World War. Modern technologies make human life much easier, because it is enough just to put the powder in the washing machine and get a clean thing. The same can be done with utensils. But do we always think about how these means of "comfort" can affect us and the environment we live in? Where do they go from our home?

One of the causes of surface water pollution in Ukraine is the discharge of untreated and insufficiently treated municipal and domestic wastewater directly into water bodies and through the municipal sewerage system.

Synthetic detergents are extremely durable and stored in water for years and decades.At the same time, we should not forget that a lot of living creatures live in natural reservoirs where sewage enters: mammals, fish, mollusks, insects, crustaceans, plants, etc. Local residents bathe here, and water can later get to our house.

One of the types of SD that every housewife uses in everyday life is washing powder. This practically indispensable means, which makes our clothes clean, seems absolutely safe at first glance. In fact, washing powder often contains hazardous ingredients that are difficult to completely wash off during washing and that remain on clothes from wash to wash. In contact with skin or mucous membranes, these substances can cause irritation and allergies in both children and adults.

The aim of the research was to study changes of morpho-physiological parameters in organisms of freshwater mollusks on the example of freshwater gastropod mollusk purple under the influence of synthetic washing powders.

The use of mollusks as objects of study is due to the fact that they are included in a number of trophic chains and are also bioindicators of aquatic pollution. The mollusks are extremely demanding to water quality and their presence in biocenoses is an indicator of its purity. In addition, they are convenient objects for study because their sensitivity to toxicants is much lower and their endurance is much higher than in the vast majority of aquatic animals. Freshwater mollusks are common and often predominant components of the hydrofauna of Ukraine.

Surfactants are the main active ingredients in detergents. Ideally, surfactants should be made from natural substances, from components of plant and animal origin: they are safe for humans and harmless to nature.

But, unfortunately, producers of cheap domestic chemistry use synthetic surfactants, which contain components of the oil processing industry, as far as they are much cheaper and easier to produce, but at the same time more toxic. Synthetic surfactants are of several types, but the most aggressive are anionic. The composition of

washing agents includes the following groups of substances: phosphates, zeolites, phenols, optical bleaching agents, dyes and aromatizers.

The research experiment to study the toxicity of detergents in various brands was preceded by an anonymous survey of our city residents on the popularity of detergents. The results of the survey showed the following: the most popular among the population were such washing powders as "Gala", "Ushastyi Nan" and "Persil". These SD were used during our experiment.

The mollusks were placed in containers with different concentrations of powder for 20 days. After conducting the experiment, we obtained the following data: during the study of the effect of detergents on the body of mollusk purple, it was found that the most toxic of the three detergents is "Ushastyi Nan", in its solution mollusks died faster than in other detergents.

Detergents concentrations of 2, 1.5 and 1 mg / l, caused a generally insignificant death of studied invertebrates in solutions of powders "Gala" and "Persil". Low concentrations of Gala and Persil caused lower deaths during biotesting (40 to 60%).

The least toxic among the studied washing powders was "Persil", where only 20% of individuals died at the highest concentration of 2 mg / l on day 7 of the experiment.

Taking into account the data obtained in the course of the experiment, we can draw the conclusions that the lowest toxic effect on living organisms have powders with low phosphates content.

The least toxic washing powder, in terms of its impact on molluscs, turned out to be "Persil", which contains less than 5% phosphates and the same amount of anionic surfactants (5-15%). "Gala" occupies an intermediate position between "Persil" and "Ushastyi Nan", but information on its phosphate content is hidden by the manufacturer.

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