their natural conditions. They are not afraid of people and they concentrate in significant numbers on the beach areas where holiday-makers feed them.

To study the influence of environmental factors on the formation of the communities' structure of wetland birds in Minsk during the summer period of 2015-2016, 2019, the perimeter, pond area, water table area, surface area of islands of vegetation were determined using satellite imagery in OziExplorer v. 3.95.5 n and also based on available information from personal observations [2].

Statistical processing of the results was carried out by generally accepted methods in GraphPad Prism version 5.00 software packages.

The modern ornithocomplex of wetland birds in Minsk is characterized by high abundance of species including 73 species, 29 of which are nesting.

The mallard (Anas platyrhynchos), which is characterized by a high number throughout all seasons and forms wintering populations, plays the major role in the formation of cercaria-hazardous zones in Minsk [3]. The European pochard (Aythya ferina), the tufted duck (Aythya fuligula), the mute swan (Cygnus olor), the Eurasian wigeon (Mareca penelope), the Eurasian coot (Fulica atra), the great crested grebe (Podiceps cristatus), the black-headed gull (Larus ridibundus), the common gull (Larus canus), the common tern (Sterna hirundo) can serve as an additional source of schistosomatidae in the city's pond during the spring-autumn period. These species are noted as the final owners of schistosomatidae in Europe. The secondary role of these species is associated with their lower representation in water bodies, due to relatively low abundance (the diving ducks, the mute swan, the Eurasian wigeon, the great crested grebe, the Eurasian coot, the common tern).

In order to prevent cases of cercariosis among the population of Minsk, we offer personal protective equipment, as well as the placement of information stands on Komsomolskoye Lake, the water reservoirs Drozdy and Tsnyanskoye. The information stands will reflect the mechanism of infection and also contain a list of necessary precautions to minimize the infection.

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METHOD DEVELOPMENT FOR DETERMINATION OF PHARMACEUTICAL WASTE IN WATER BY UV-VIS SPECTROSCOPY

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The efficient treatment of pharmaceutical wastes is a big challenge because they are biologically active and resistant to biodegradation. Although pharmaceuticals can appear at low concentration in ground water, sur-face water, and drinking water, they can cause serious harm to the environment. The conventional treatment of wastewater is not efficient at removing pharmaceutical waste. Photocatalytic degradation is shown to be a promis-ing method to remove pharmaceuticals from the water. Thus, the recent research efforts focus on the enhancement of the catalysts' performance. The aim of this study is to choose a model substance most suitable to simulate the pharmaceutical wastes in photocatalytic experiments.

Keywords: photocatalyst, UV-Vis spectroscopy, acetylsalicylic acid, sodium caffeine-benzoate, ibuprofen, acetaminophen, amoxicillin, optical density.

Over the past few years there has been considerable interest in the removing of pharmaceuticals from the environment as they usually consist of biologically active lipophilic substances. The pharmaceuticals can be found in hospital wastewater and industrial wastewater. They also appear at a trace level in ground water, surface water, and

drinking water [1]. The conventional wastewater treatment equipment is not designed to remove the residual pharmaceutical pollutants [2]. Heterogeneous photocatalysis is considered to be one of the promising methods to remove the pharmaceuticals from water [1, 2]. However, the performance of the existing heterogeneous photocata-lysts is not sufficient. Therefore they are not applicable for industrial-scale implementation.

The aim of this study was to find the appropriate substance to simulate the pharmaceuitical waste in experiments on photocatalytic degradation with the help of ZnO-based photocatalysts. Several drags were chosen as a potential model substance. As the photocatalitic activity of catalysts is evaluated by measuring the concentration of a drag, the UV-Vis spectra of potential model substances were investigated (Fig. 1).

As it is clearly seen in Figure 1, caffeine has a well-pronounced peak at around 270 nm. Caffeine was chosen as a model substance in further experiments. Figure 2 shows the calibration curve of caffeine. The linear range of the absorbance-concentration relationship was found to be between 50.0 mg/l and 400 mg/l.

This work was financially supported by the State Research Program "Physical material science. Novel materials and technologies".

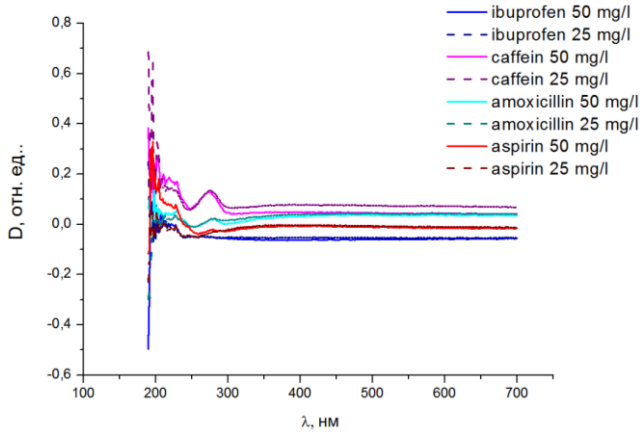

Fig. 1. – UV-VIS spectra of caffeine, ibuprofen, aspirin, amoxicillin

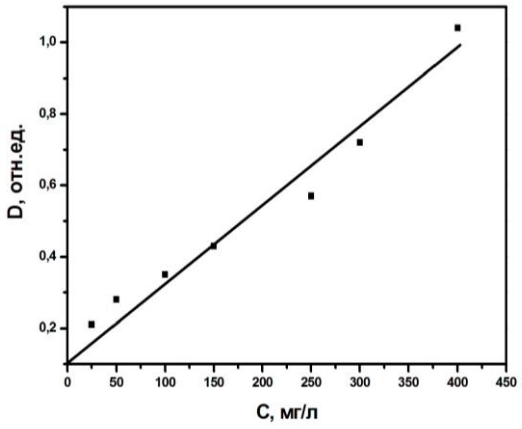

Fig. 2. – Calibration curve of caffeine

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QUANTUM-CHEMICAL CALCULATION OF ANTIOXIDANT PROPERTIES OF SULFORAPHANE

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In the present study geometry optimization and electronic structure of the molecule sulforaphane have been carried out using the Density Functional Theory (DFT) in the solvent water for the first time.

Keywords: antioxidant activity, sulforaphane, electronic spectrum.

The method of molecular mechanics (MM+) of HyperChem 08 software package was chosen to calculate the starting geometry of the sulforaphane molecule. The starting geometry of the molecule was further optimized in the solvent (water) by the semi-empirical PM7 method of the Gaussian 09W software package until the global min-imum of the total energy of the studied systems was reached. To determine the global energy