



ASSESSMENT OF THE SELF-PURIFICATION CAPACITY OF VALEA MORILOR'S LAKE

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On the example of Direct Blue dye, the substance with the status of pollutant, and the waters of the Valea Morilor's Lake, it was performed a research that aimed to determine the load of pollutants which can be accepted by natural waters, without implying a negative irreversible impact on the natural ecosystem. The research has been realized on the microcosm type system.

The effectiveness of the self-purification processes of water from Valea Morilor's Lake, in the presence of substrate (in concentrations of orders 0,001 mg/l, 0,01 mg/l, 0,05 mg/l), has been evaluated basing on the following indicators: physic-chemical (rH_2), oxygen saturation level (SL (O_2), COD_{Cr}) and inhibition capacity ($\Sigma ki \cdot [Si]$).

The self-purification power, evaluated by the rH_2 parameter, denotes a growth in the content of the matter with reducing properties, but its quantity does not move the redox balance into reducing domain, below 28.3 values. Neither redox processes which involve OH radicals are slowed down, as the inhibition capacity maintains its characteristic values for natural waters in the normal state ($< 3 \cdot 10^5 s^{-1}$). Even the investigations on model systems have revealed that the dye is a peroxidase substrate, the modeling on microcosms pointed out a decrease in oxygen saturation level with increasing of substrate content. This demonstrates that in real conditions, the natural water opposes the external intervention by applying an entire self-purification mechanism, involving all self-purification processes. The values of COD_{Cr} indicator have revealed that it cannot be realized the complete mineralization of dye in natural conditions.

In such a way, the performed research has revealed that, in case of an accidental pollution with the Direct Blue dye, in concentrations up to 0, 05 mg/l, the aquatic systems will be able to attenuate the pollution effects.