

DYNAMICS OF THE SELF-PURIFICATION PROCESSES IN THE WATERS OF THE DNIESTER RIVER DURING THE YEARS 2015-2024. (Dubăsari – Vadul lui Vodă section)

Maxim Cisteacov*, Gheorghe Duca, Vladislav Blonschi, Viorica Gladchi, Angela Lis,
Elena Bunduchi

*Faculty of Chemistry and Chemical Technology, Moldova State University,
60, Alexe Mateevici str., Chisinau MD-2009, Republic of Moldova
e-mail: maxim.cisteacov@usm.md

Abstract. In this work, have been evaluated the dynamics of the self-purification processes of the Dniester River waters in the section from Dubăsari to Vadul lui Vodă based on the analysis of the parameters: biochemical oxygen demand (BOD₅), chemical oxygen demand (COD_{Cr}), thiol content, and the inhibition capacity of the waters in carrying out chemical self-purification processes through free radicals ($\Sigma kiSi$). According to the BOD₅ values, the Dniester waters belong to quality classes II and I, and according to the COD_{Cr} parameter, they fall into quality classes II and III. The thiol content is typical of fresh waters (10^{-6} M), and they are of natural origin. The inhibition capacity classifies the river's waters as slightly and moderately polluted. Along the river, were observed a decrease in biological self-purification processes and an increase in the intensity of free radical processes in the Criuleni area, indicating an additional inflow of reducing compounds into the Dniester waters from its tributary, the Răut River. Additionally, we noted a tendency for the aquatic environment quality restoration in the Vadul lui Vodă area.

Keywords: natural waters, biochemical oxygen demand, thiols, inhibition capacity, self-purification processes.