

## SELF-PURIFICATION OF AQUATIC MEDIA FROM HEXACHLOROCYCLOHEXANE IN A RADICAL PROCESS

Serghei Travin <sup>a</sup>, Gheorghe Duca <sup>b,c</sup>, Viorica Gladchi <sup>d\*</sup>

<sup>a</sup>*N.N. Semenov Institute of Chemical Physics, Russian Academy of Sciences,  
4, Kosygin str., Moscow 119991, Russian Federation*

<sup>b</sup>*Institute of Chemistry, 3, Academiei str., Chisinau MD-2028, Republic of Moldova*

<sup>c</sup>*Academy of Sciences of Moldova, 1, Stefan cel Mare Av., Chisinau MD-2001, Republic of Moldova*

<sup>d</sup>*Faculty of Chemistry and Chemical Technology, Moldova State University,  
60, A. Mateevici str., Chisinau MD-2009, Republic of Moldova*

\**e-mail: viorica.gladchi@gmail.com*

**Abstract.** It is known, that highly toxic pesticide hexachlorocyclohexane (HCH) is resistant to decomposition and has a long-term accumulating capacity. Nevertheless, it undergoes complete degradation in reactions with hydroxyl radicals in Fenton-like systems. The goal of this work was to study the influence of HCH on the processes of radical self-purification of water bodies and to explain the mechanisms of chemical transformation of substances occurring in natural waters, as well as to reveal the kinetic characteristics of the processes of radical self-purification of water bodies. It was found, that HCH plays a dual role for aquatic ecosystems – it is not only a scavenger of free radicals, but also an additional initiator. Under the influence of light in the surface layer of water, HCH generates radicals, thus contributing to the self-purification processes.

**Keywords:** hexachlorocyclohexane, natural water, radical self-purification, kinetic characteristic.

*Received: 12 November 2018/ Revised final: 19 March 2019/ Accepted: 25 March 2019*

---