

HYDROGEN PEROXIDE IN ECOLOGICAL AND ENVIRONMENTAL CHEMISTRY

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Abstract. This review paper is focused on the detailed consideration of the structure, properties and reactions of hydrogen peroxide. Basic principles of chemical processes with the involvement of H_2O_2 are discussed, considering its dual donor-acceptor properties and broad applications in the numerous environmental and technological redox processes. The paper highlights the importance of revealing these processes mechanisms, since they have been insufficiently studied so far, or the related data have a fragmentary and incomplete character. A special attention is given to catalytic oxidation reactions, formation and properties of intermediates, their role in the natural environment. The H_2O_2 plays a specific role in biochemical transformations in living organisms. Its presence in natural fresh water bodies is considered to be a necessary condition for waters self-purification, a process opposite to water pollution, especially given that the share of H_2O_2 decomposition leading to the formation of active $OH\cdot$ radicals is 10–50%.

Keywords: hydrogen peroxide, redox process, catalysis, transition valence metal ion, intermediate specie.

Received: 09 November 2021/ Revised final: 09 December 2021/ Accepted: 14 December 2021
