

HYDROGEN PEROXIDE IN ECOLOGICAL AND ENVIRONMENTAL CHEMISTRY

Gheorghe Duca

Institute of Chemistry, 3, Academiei str., Chisinau MD 2028, Republic of Moldova
e-mail: ggduca@gmail.com, 373 078888807

Abstract. This paper contains the detailed discussion related to the structure, properties, formation, decomposition, reactions of hydrogen peroxide, substance with rather simple molecule but with great importance for natural and anthropogenic systems. A special attention is given to the specifics and types of catalytic oxidation reactions with H₂O₂ involvement, including the detailed mechanisms of processes, formation and properties of intermediates, their role in natural environment. It is shown that hydrogen peroxide equally plays specific role in biochemical processes in living organisms. Its presence in natural fresh water bodies is a necessary condition for self-purification. The role of the transition valence metal ions, hydroxylic forms and complex compounds as catalysts in these processes is revealed. Various applications of hydrogen peroxide in medicine, industry, agriculture and other areas of human activity demonstrate its potential to be used on a broader scale, being non-toxic, environmentally-friendly, active and unexpensive reagent, which requires elaboration of new improved approaches and technologies.

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