

N°546 / OC

TOPIC(s) : Clean reactions

Hydrogen peroxide as a green reagent in organic synthesis

AUTHORS

Alexander TEREENT'EV / N. D. ZELINSKY INSTITUTE OF ORGANIC CHEMISTRY, RUS, MOSCOW, LENINSKY PROSPEKT 47, MOSCOW

Ivan YAREMENKO / ZELINSKY INSTITUTE OF ORGANIC CHEMISTRY, MOSCOW, LENINSKY PROSPEKT 47, MOSCOW

Fabrice FLEURY / MECHANISM AND REGULATION OF DNA REPAIR TEAM, UFIP CNRS UMR 6286, UNIVERSITÉ DE NANTES, 2 RUE DE LA HOUSSINIÈRE, NANTES

PURPOSE OF THE ABSTRACT

In the last decades, organic peroxides have received considerable attention from chemists and drug design experts, which is associated with a need in the search for drugs for the treatment of parasitic diseases, such as malaria and helminth infections. Considerable progress has been made in the design of effective peroxide antimalarial drugs. Some synthetic peroxides exhibit activity equal to or higher than that of artemisinin. Peroxides having antitumor or growth-regulatory activity were also documented.

In our work we developed atom-efficient and green methods for synthesis of various types of organic peroxides using hydrogen peroxide and carbonyl compounds.

This work was supported by RFBR according to the research project 18-53-15010 and Projets de Recherche Conjoints (PRC) - CNRS, PRC Russie 2017 CNRS.

FIGURES

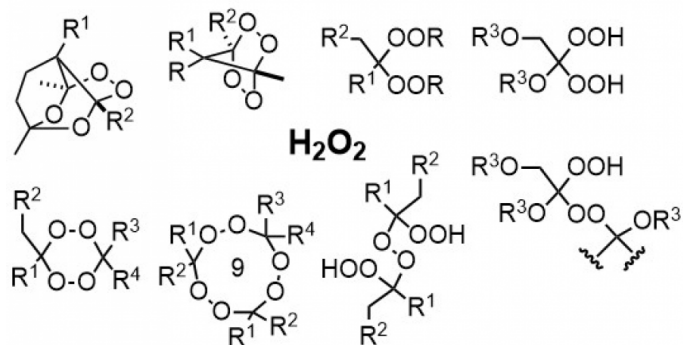


FIGURE 1

Hydrogen peroxide in organic peroxides synthesis

Atom-efficient and green methods for synthesis of various types of organic peroxides using hydrogen peroxide

FIGURE 2

KEYWORDS

Hydrogen peroxide | High atom-efficiency | Wasteless synthesis

BIBLIOGRAPHY

- [1] A.O. Terent'ev, I.A. Yaremenko, V.V. Chernyshev, V.M. Dembitsky, G.I. Nikishin, *J.Org.Chem.* 2012, 77, 1833.
- [2] K. Ingram, I.A. Yaremenko, I.B. Krylov, L. Hofer, A.O. Terent'ev, J. Keiser, *J.Med.Chem.* 2012, 55, 8700.
- [3] A.O. Terent'ev, I.A. Yaremenko, V. A. Vil', V. M. Dembitsky, G. I. Nikishin, *Synthesis* 2013, 246.
- [4] A.O. Terent'ev, I.A. Yaremenko, V. A. Vil', I. K. Moiseev, S. A. Kon'kov, V. M. Dembitsky, D. O. Levitsky, G. I. Nikishin, *Org.Biomol.Chem.* 2013, 11, 2613.
- [5] I.A. Yaremenko, A.O. Terent'ev, V.A. Vil', R.A. Novikov, V.V. Chernyshev, V.A. Tafeenko, D.O. Levitsky, F. Fleury, G.I. Nikishin, *Chem.Eur.J.* 2014, 20, 10160.
- [6] G. dos Passos Gomes, G., I.A. Yaremenko, P.S. Radulov, R.A. Novikov, V.V. Chernyshev, A.A. Korlyukov, G.I. Nikishin, I.V. Alabugin, A.O. Terent'ev, *Angew.Chem.Int.Ed.* 2017, 56, 4955.
- [7] E. Juaristi, G. dos Passos Gomes, A.O. Terent'ev, R. Notario, I.V. Alabugin, *J.Am.Chem.Soc.*, 2017, 139, 10799.