Turkish Journal of Chemistry

Turkish Journal

of

Chemistry

Structural Studies of Water-Soluble β-Brominated Manganese Porphyrins: Stabilities of MnTDCSPPBr $_8$ and MnTSPPBr $_8$ as Homogeneous and Supported Reagents Toward Hydrogen Peroxide and Sodium Hypochlorite

Hayrettin TÜRK, Hüseyin BERBER
Anadolu University, Faculty of Sciences, Department of Chemistry,
26470 Eskişehir-TURKEY

Keywords
Authors

chem@tubitak.gov.tr

Scientific Journals Home Page

Abstract: This article describes the structural stabilities of [2,3,7,8,12,13,17,18-octabromo-5,10,15,20-tetrakis(2,6-dichloro-3-sulfonatophenyl)porphinato]manganese(III) X (where X = H_2O and/or OH^- , depending on pH) (MnTDCSPPBr$_8$) and [2,3,7,8,12,13,17,18-octabromo-5,10,15,20-tetra(4-sulfonatophenyl)porphinato] manganese(III) X (where X = H_2O and/or OH^- , depending on pH) (MnTSPPBr$_8$) toward H_2O_2 and NaOCl at various pH's, I = 0.2 M and 30^{o}C. In addition, the structural stabilities of these manganese porphyrins were investigated when they were bound to quaternary ammonium containing supports, namely, hexadecyltrimethylammonium bromide (CTAB), 2,6-ionene, 2,10-ionene and a poly[(vinylbenzyl)trimethylammonium chloride] latex. In alkaline media, both manganese porphyrins degraded and precipitated even in the absence of both of the oxidants. In neutral and acidic solutions, they showed increasing stabilities toward H_2O_2 as pH decreased and almost no stabilities toward NaOCl. When bound to CTAB and the latex, they gained very high stabilities toward H_2O_2 at pH < 2 and almost no degradation was observed. On the other hand, the stabilities of the ionene-bound manganese porphyrins were close to the free complexes. The pseudo-first order degradation rate constants of MnTDCSPPBr$_8$, MnTSPPBr$_8$ and their supported analogues were determined.

Turk. J. Chem., **25**, (2001), 215-222.
Full text: pdf
Other articles published in the same issue: Turk. J. Chem.,vol.25,iss.2.