

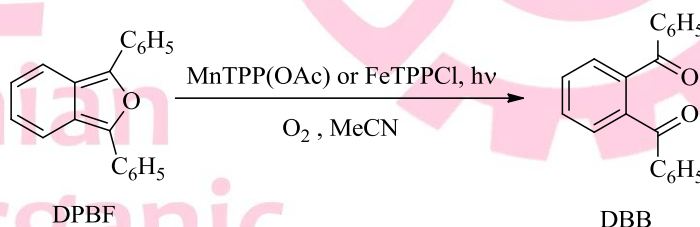
Aerobic photooxidation of 1,3-diphenylisobenzofuran in the presence of manganese and iron porphyrins

Elham Kharrati and Saeed Zakavi*

Department of Chemistry, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan 45137-66731, Iran

*Email: zakavi@iasbs.ac.ir

Due to the very short lifetime of the triplet state, paramagnetic metalloporphyrins were found to show no photocatalytic activity for the oxidation of organic compounds, with the intermediacy of singlet oxygen as the reactive oxygen species [1,2]. In the present study, two high spin manganese(III) and iron(III) were used as photosensitizers to investigate the singlet oxygen generation ability of the metalloporphyrins, using 1,3-diphenylisobenzofuran (DPBF) as a specific singlet oxygen quencher [3,4,5]. Although, the rate of degradation of DPBF in the presence of the iron porphyrin was much higher than that observed in the presence of the manganese counterpart, both metalloporphyrins showed photocatalytic activity for the oxidation of the organic substrate.



Keywords: Paramagnetic manganese and iron porphyrins, Degradation of 1,3-diphenylisobenzofuran, Aerobic photooxidation

References

- [1] M. C. DeRosa and R. J. Crutchley, *Coord. Chem. Rev.*, **2002**, 233-234, 351-371.
- [2] P. J. Gonçalves, L. De Boni, I. E. Borissevitch and S. C. Zílio, *J. Phys. Chem. A*, **2008**, 6522-6526.
- [3] Y. You, *Org. Biomol. Chem.*, **2018**, 16, 4044-4060.
- [4] S. Zakavi, H. Yavari, A. Heydari-turkmani and L. Alghooneh, *J. Catal.*, **2020**, 387, 84-94.
- [5] C. Schmitz, J. M. Aubry and J. Rigaudy, *Tetrahedron*, **1982**, 38, 1425-1430.