

Synthesis and photophysical properties of side-chain chlorinated 5,9-diaminobenzo[*a*]phenoxazinium salts

B. R. Raju^a, A. L. S. Costa^b, P. J. G. Coutinho^a, M. S. T. Gonçalves^b

^aCentro de Física and ^bCentro de Química, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal

ex2927@fisica.uminho.pt

Nile Blue and its derivatives belong to the benzo[*a*]phenoxazine family and are important fluorochromophores in various areas, including those of the quantification and visualization of biomolecules due to their favorable photophysical properties.¹ They display long wavelength absorption and emission maxima, high molar absorptivities and fluorescent quantum yields. For covalent labeling purposes, the presence of a functional group is essential and a second reactive group in the fluorophore allows for the possibility of linkage to another entity in addition to the biomolecule. Considering these facts, and in connection with our recent research interests with Nile Blue derivatives,^{2,3} the present work describes the synthesis and photophysical characterization of novel functionalised benzo[*a*]phenoxazinium chlorides possessing chlorinated side-chains at the 9-position of the heteroaromatic system together with methyl, hydroxyl or amine groups as terminals of the substituents at the 5-position (Fig. 1).

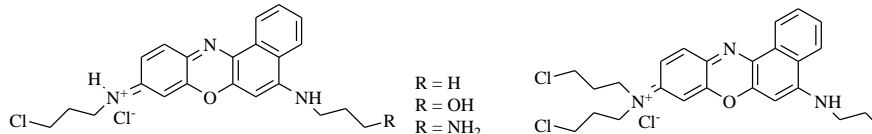


Figure 1. Structure of benzo[*a*]phenoxazinium chlorides.

Acknowledgments: Thanks are due to *Fundação para a Ciência e Tecnologia* (Portugal) for its financial support of a BPD to B. R. Raju (SFRH/BPD/62881/2009), *Centro de Química* and *Centro de Física* (*Universidade do Minho*). The NMR spectrometer Bruker Avance III 400 is part of the National NMR Network and was purchased in the framework of the National Program for Scientific Re-equipment, contract REDE/1517/RMN/2005 with funds from POCI 2010 (FEDER) and FCT.

References

- [1] J. Jose, K. Burgess, *Tetrahedron*, 62 (2006) 11021-11037.
- [2] C. M. A. Alves, S. Naik, P. J. G. Coutinho, M. S. T. Gonçalves, *Tetrahedron* 65 (2009) 10441-10452.
- [3] C. M. A. Alves, S. Naik, P. J. G. Coutinho, M. S. T. Gonçalves, *Tetrahedron Lett.* 52 (2011) 112-116.