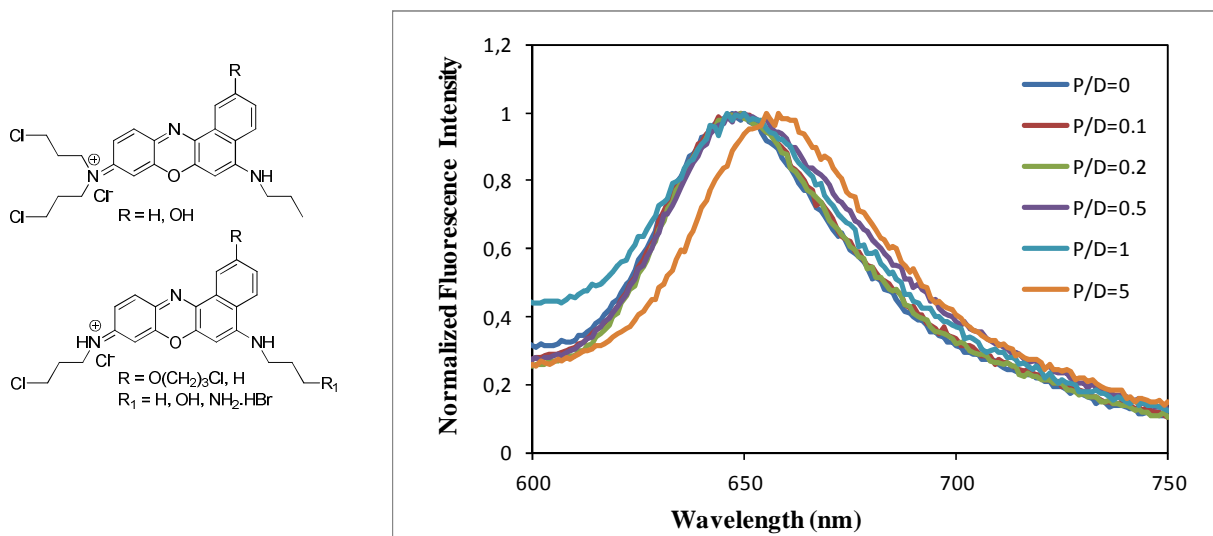


DNA fluorescence probes based on side-chain chlorinated benzo[*a*]phenoxazinium chlorides

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Nile Blue, a benzo[*a*]phenoxazinium dye, has been reported as DNA probe,¹ and was considered a good intercalator of DNA double helix.² Mitra and collaborators clearly identified non-specific electrostatic and intercalative modes of interaction of the label with DNA at lower and higher DNA concentrations, respectively.³

Bearing in mind earlier observations combined with our current research interest on benzo[*a*]phenoxazinium dyes,⁴ and following on from our previous evaluation of the potential of these family of fluorophores as DNA labels,^{4c} we report the photophysical behaviour of several side chain chlorinated benzo[*a*]phenoxazinium chlorides functionalized with various types of terminals (hydroxyl, amino and methyl) at the 5- and 9-amino positions of the heteroaromatic ring. It was previously^{4d}, assigned a ~20nm red shift is observed upon intercalation with a previous quenching resulting from H-aggregate formation through electrostatic binding and/or a blue shift that was interpreted as basic form formation at the DNA grooves. In this work a big influence on the type and position of the terminal group is observed in the form of DNA interaction. An amino group at the 9-amino position greatly promotes intercalation that seems to be completed at a DNA phosphate to dye ratio (P/D) between 1 and 5.



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