Oxidation of Isodiphenylfluorindine and Synthesis of Isodiphenylfluorindinone and Isodiphenylfluorindone

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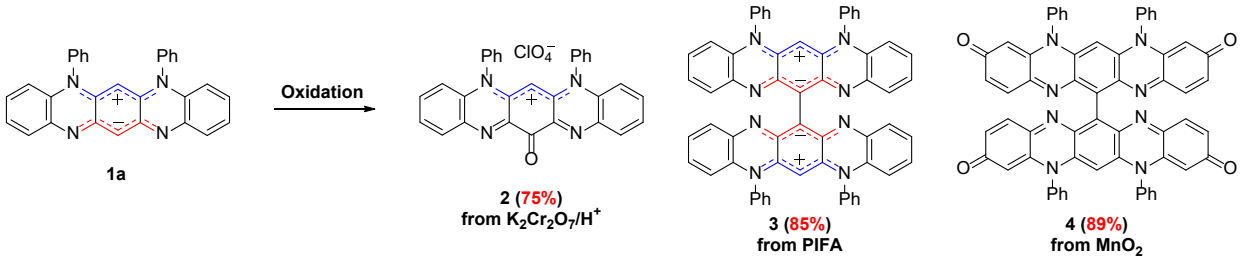
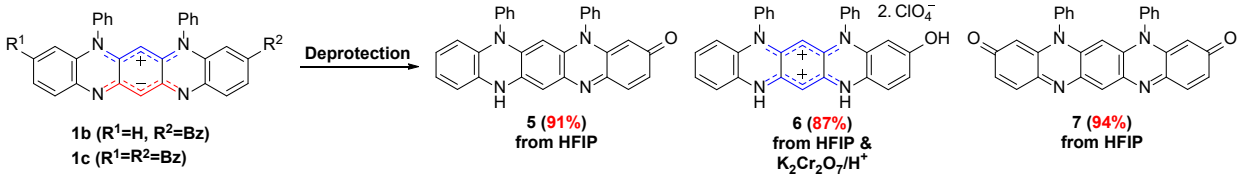
Isodiphenylfluorindine **1a** [1] and its quaternary salts are known dyes (fiber, textile, keratin) and inks (printers, ink balls, etc.), while recently, **1a** and its analogues, attracted interest as electroactive components and optical chromophores. Herein, we present its oxidative stability.

Oxidation of isodiphenylfluorindine **1a** with $K_2Cr_2O_7/H^+$ gives 13-oxo-isodiphenylfluorindinium perchlorate **2** (75%), while the zwitterionic and quinoidal cruciform 13,13'-dimers **3** (85%) and **4** (89%), are obtained from PIFA and MnO_2 oxidants, respectively [2]. The zwitterionic 13,13'-dimer **3** can be rapidly converted to the quinoidal 13,13'-dimer **4** (100%), with MnO_2 [2].



The C3- and C3,C9-oxo analogues of isodiphenylfluorindine **1a**, *i.e.* isodiphenylfluorindinone **5** and isodiphenylfluorindone **7**, which were postulated a century ago [3], cannot be obtained by direct oxidation of **1a**. An alternative path was followed, where deprotection of the C3- and C3,C9-benzoyloxy isodiphenylfluorindines **1b** and **1c** in HFIP gave isodiphenylfluorindinone **5** and isodiphenylfluorindone **7**, respectively [3]. Isodiphenylfluorindinone bisperchlorate **6** was also synthesized [3]. Optical and electrochemical behavior, along with selected theoretical studies are also presented.



References

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[4] G. A. Zissimou, A. Kourtellaris and P. A. Koutentis, *J. Org. Chem.*, **2018**, *83*, 4754.