GENERAL REMARKS

1. All melting points and boiling points are recorded on the Celsius scale and are uncorrected.
2. IR spectra were recorded as nujol mull or neat, on a Perkin-Elmer Infrared Spectrometer Model 599-B, Model 1620 FT-IR and ATI Mattson, UK, Model-RS-1 FT-IR, using sodium chloride optics. IR bands are expressed in frequency (cm\(^{-1}\)).
3. \(^1\)H NMR spectra were recorded using tetramethylsilane as internal reference on Bruker MSL-300, Bruker AC-200, Bruker WH-90, Bruker FT-80A. Chemical shifts were recorded in parts per million (\(\delta\)). Abbreviations, \(\text{viz.},\ s = \text{singlet},\ d = \text{doublet},\ t = \text{triplet},\ dd = \text{doublet of doublet},\ dt = \text{doublet of a triplet},\ brs = \text{broad singlet},\ br = \text{broad peak}\) and \(m = \text{multiplet}\) have been used. CDCl\(_3\) was used as the solvent unless otherwise mentioned.
4. \(^{13}\)C NMR spectra were recorded on Bruker MSL-300 and Bruker AC-200 instrument operating at 75 MHz and 50 MHz respectively.
5. Mass spectra were recorded on a Finnigan-Mat 1020C mass spectrophotometer at 70 eV.
6. Elemental analyses (C, H) were obtained on a Carlo - Erba 1100 automatic analyser.
7. Cyclic Voltametric experiments were carried out with a three electrode assembly on PAR 175 Universal programmer and PAR RE0074 XY recorder.
8. Fluorescence spectra were recorded on Spex-Fluorolog 212 spectrofluorimeter. The excitation and emission slit widths were maintained at 0.5 mm. The steady state emission measurements were carried out using a 1 cm \(\times\) 1 cm quartz cell. A right angle configuration for the cell holder was utilised during the measurement of excitation and emission spectra.
9. Quantum Yield measurements were performed using Applied Photophysics Quantum Yield reactor, model QYR-20.
10. Pulse radiolysis and laser flash photolysis experiments were conducted at BARC, Mumbai. The detailed description of the instruments is presented in the experimental section.
11. Photoirradiations were performed using 450W Hanovia medium pressure lamp.
12. The progress of the reaction was monitored by analytical thin layer chromatography (TLC) and/or high pressure liquid chromatography (HPLC). Analytical TLC was performed using precoated silica gel 60 F\textsubscript{254} (Merck, Germany) plates. GC analysis was done using Perkin Elmer, Model 8700.

13. Exact product ratios were determined by HPLC analysis (Perkin Elmer, model 250 binary LC pump along with LC 135C diode array detector) using reverse phaseC\textsubscript{18} (Bondapack 0.5 µm) column.

14. Known compounds were characterised by their boiling points, melting points, IR and \textsuperscript{1}H NMR.

15. Pet-ether refers to the fraction boiling between 60-80 °C.

16. Room temperature (r.t.) refers to the temperature 30 ± 5°C.

17. NMR and Mass Spectra for the compounds discussed in the text are appended at the end of the chapters.

18. The number assigned to the compounds, charts, figures and schemes in each chapter of the thesis refer only to that particular chapter.