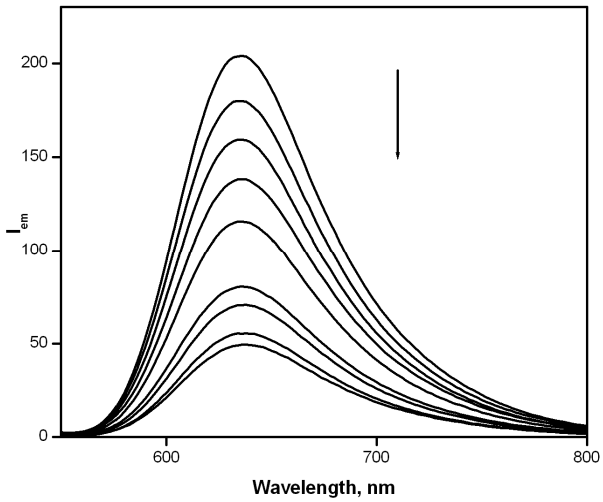
Supplementary Material (ESI) for Photochemical & Photobiological Sciences

Supporting Information:

Figure Captions:

Figure S1: The change in luminescence intensity for the reductive quenching of complex, $[Ru(dcbpy)_3]^{2+}$ with different concentrations of *para*-methoxyphenyl methyl sulfide. (Form top : 0, 2×10^{-4}, 4×10^{-4}, 6×10^{-4}, 8×10^{-4}, 2×10^{-3}, 4×10^{-3}, 8×10^{-3}, 2×10^{-2} M respectively).

Figure S2: Lifetime quenching of $[Ru(dcbpy)_3]^{2+}$ by different concentrations of *para*- methoxy methyl phenyl sulfide. (From top: 0, 4×10^{-4}, 8×10^{-4}, 2×10^{-3}, 4×10^{-3}, 8×10^{-3} M respectively).



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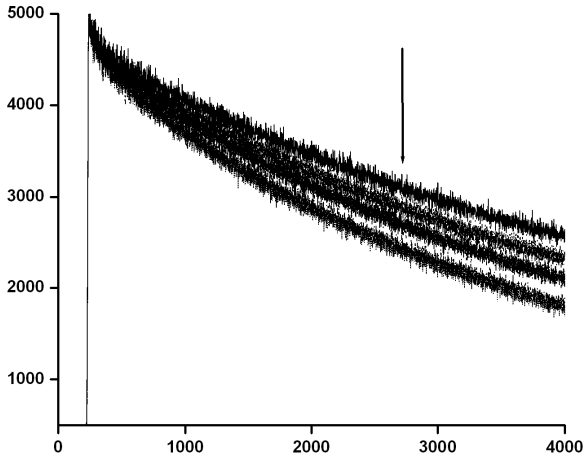

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Table S1: Bimolecular quenching rate constants, k_q, for the $*[Ru(dcbpy)_3]^{2+}$ complex by organic sulfides in CH_3CN at 298 K.

Quencher	E^0_{ox}, V	λ_0, eV[a]	k_{23}, $M^{-1}s^{-1}$ (Exp)	k_{23}, $M^{-1}s^{-1}$ (Cal)
Methyl phenyl sulfide	1.53	0.82	1.6×10^6	2.7×10^6
methyl *p*- methoxyphenyl sulfide	1.26	0.65	5.0×10^7	4.2×10^7
methyl *p*- tolyl sulfide	1.41	0.71	4.0×10^6	3.4×10^6
methyl *p*- fluorophenyl sulfide	1.54	0.78	4.6×10^5	5.4×10^6
methyl *p*- chlorophenyl sulfide	1.55	0.76	3.5×10^5	4.1×10^6
methyl *p*- bromophenyl sulfide	1.56	0.74	2.2×10^5	2.7×10^6
methyl *p*- nitrophenyl sulfide	1.85	0.72	9.7×10^4	2.1×10^5

[a]values are calculated using eqn 3 in the main text