Supporting information

Acridinium-Based Sensor as Fluorescent Photoinduced Electron Transfer Probe for Proton Detection Modulated by Anionic Micelles

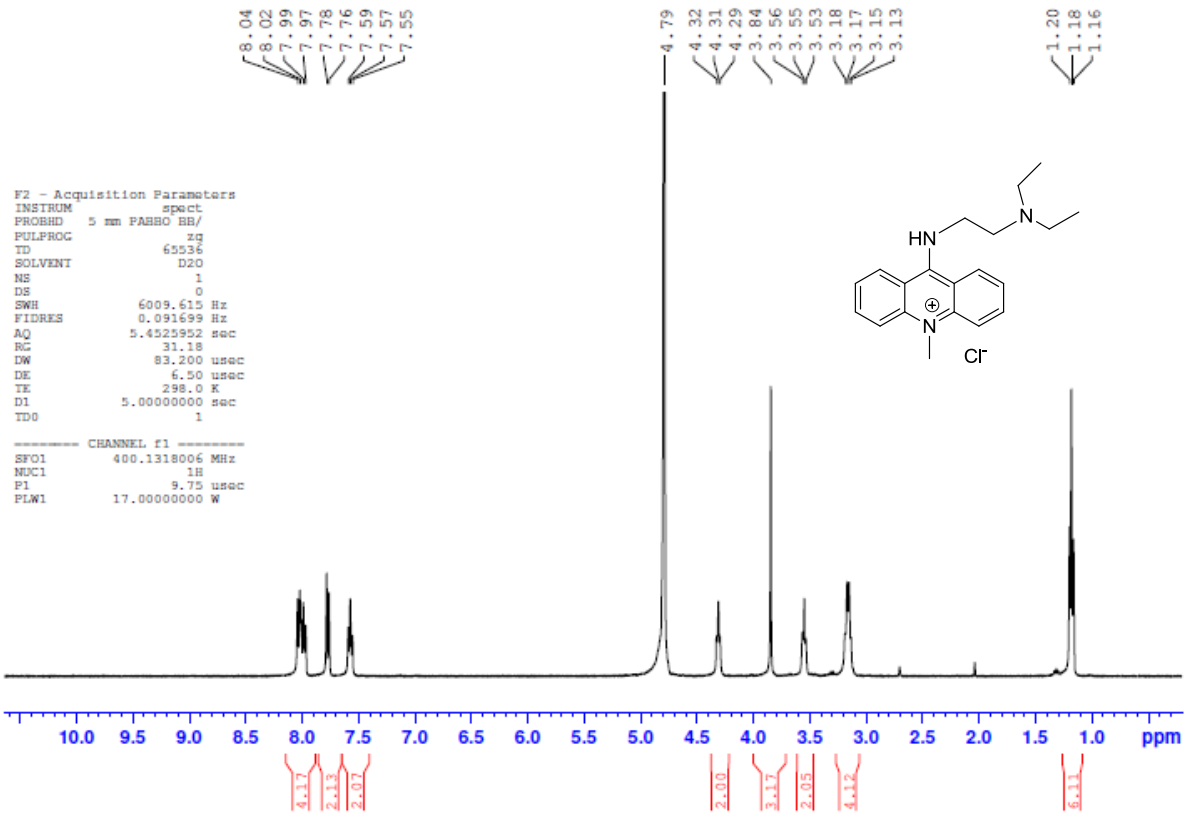
Stefano Basili, Tiziana Del Giacco,* Fausto Elisei, and Raimondo Germani

Dipartimento di Chimica, Biologia e Biotecnologie and Centro di Eccellenza Materiali Innovativi Nanostrutturati (CEMIN), Università di Perugia, Via Elce di sotto 8, 06123, Perugia, Italy

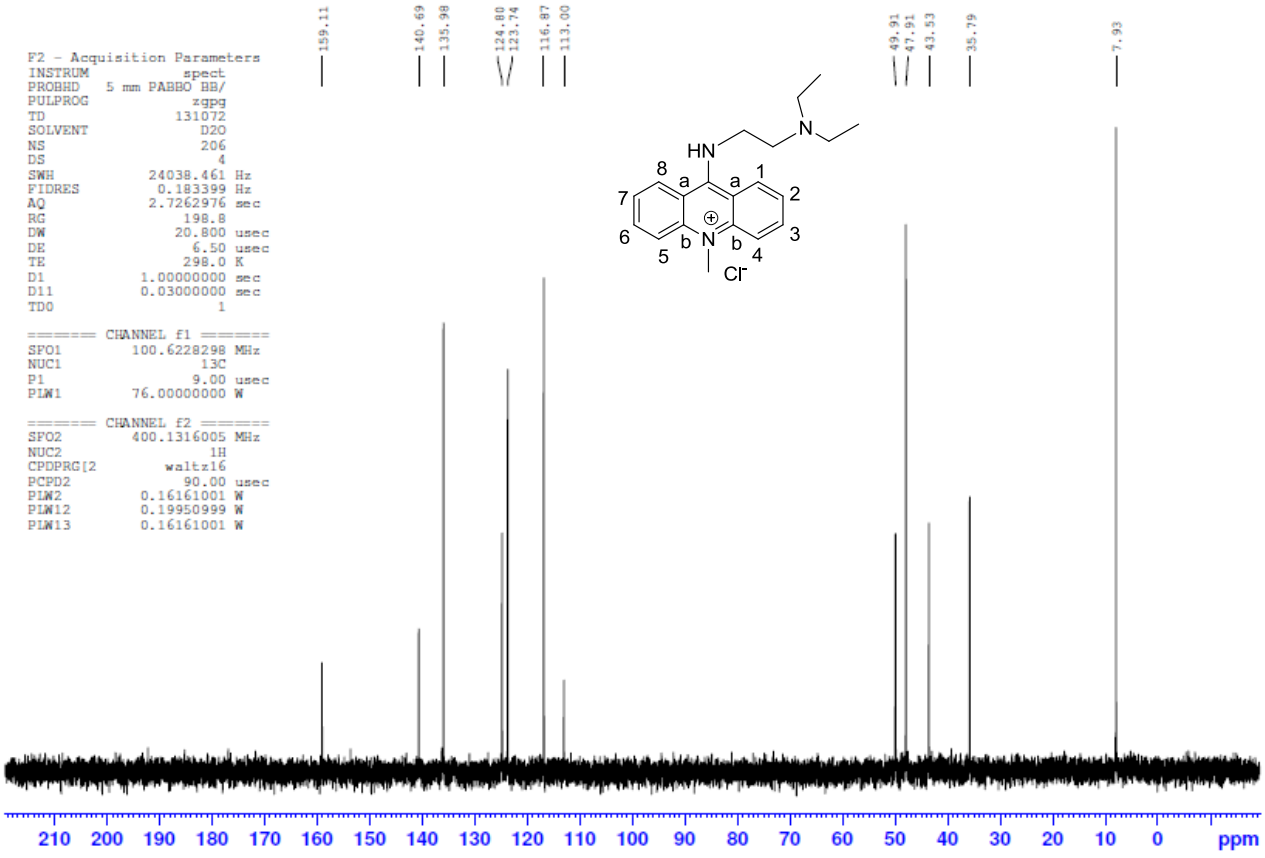
tiziana.delgiacco@unipg.it

Table of Contents

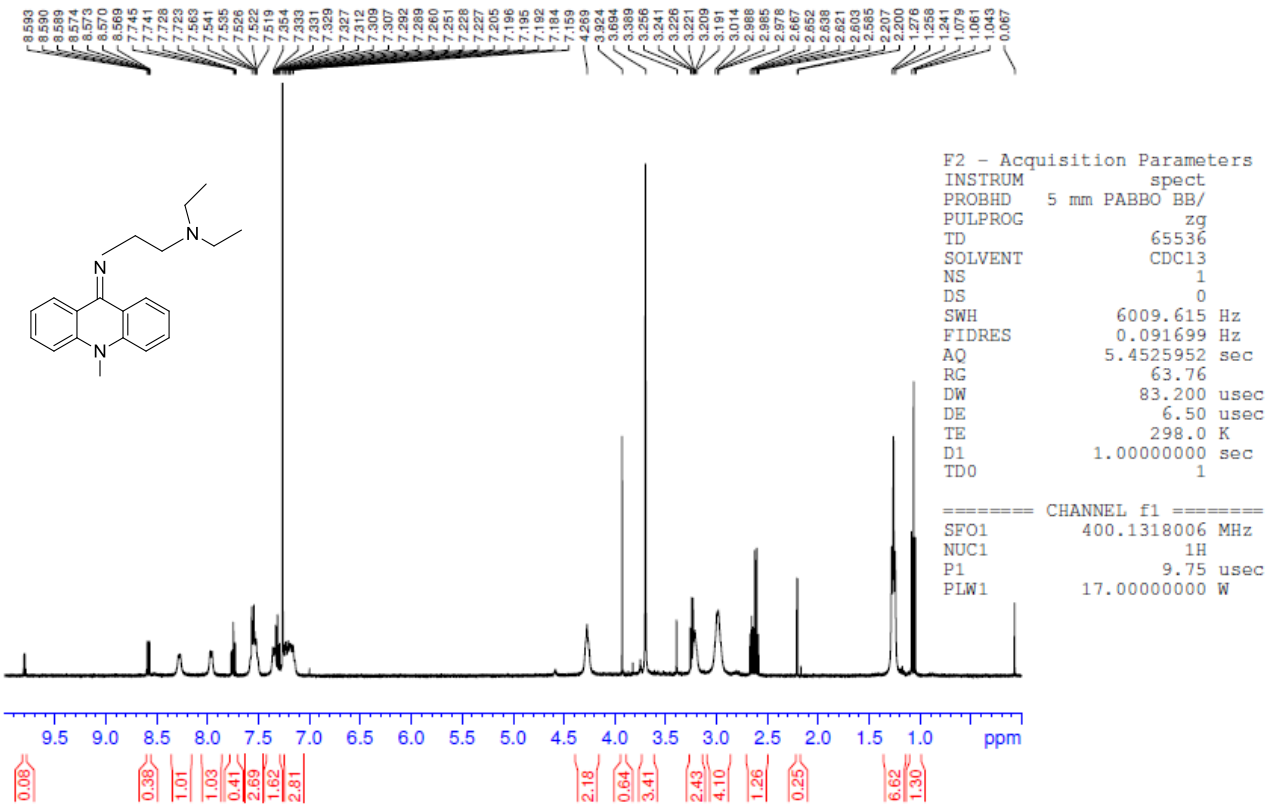
^{1}H and ^{13}C NMR spectra of compounds



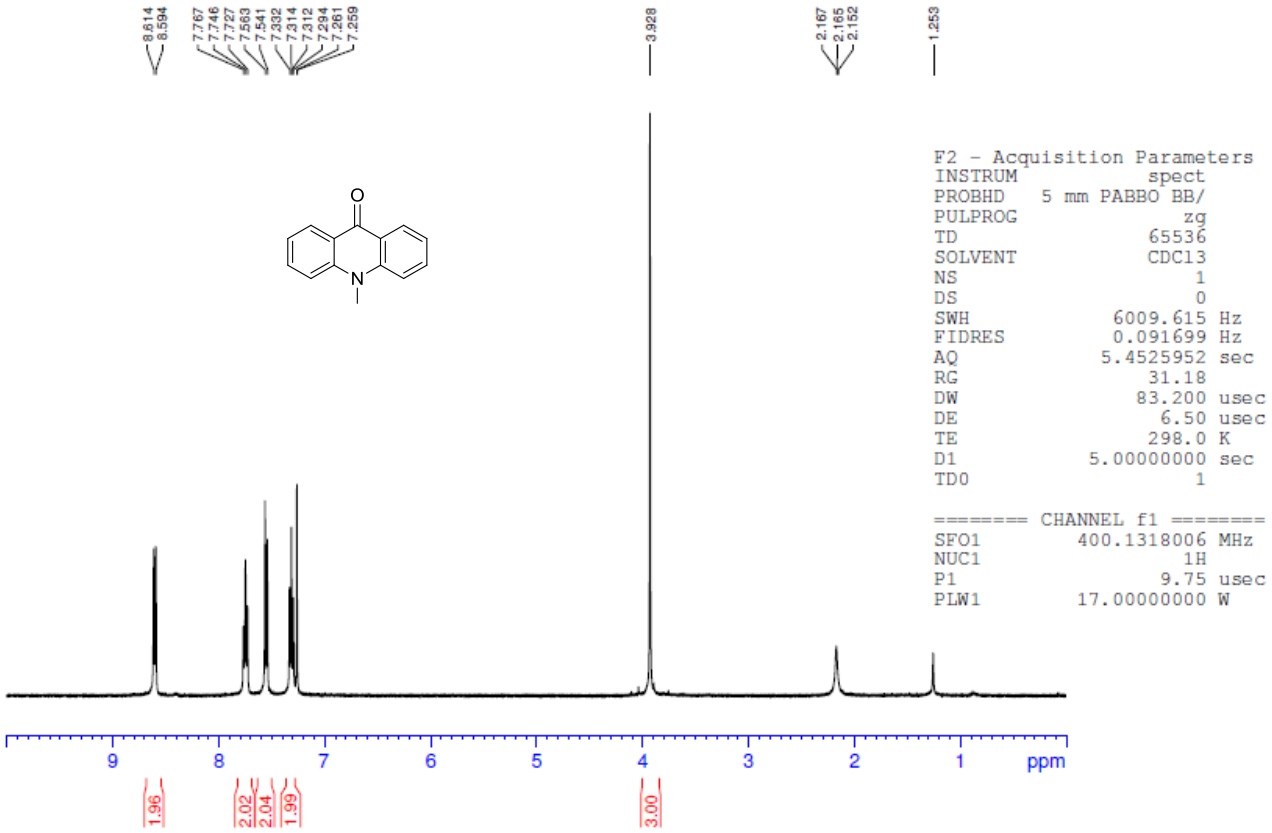
^{1}H NMR spectrum (D_2O, 400 MHz) of Acr^{+}-A Cl^{-}.



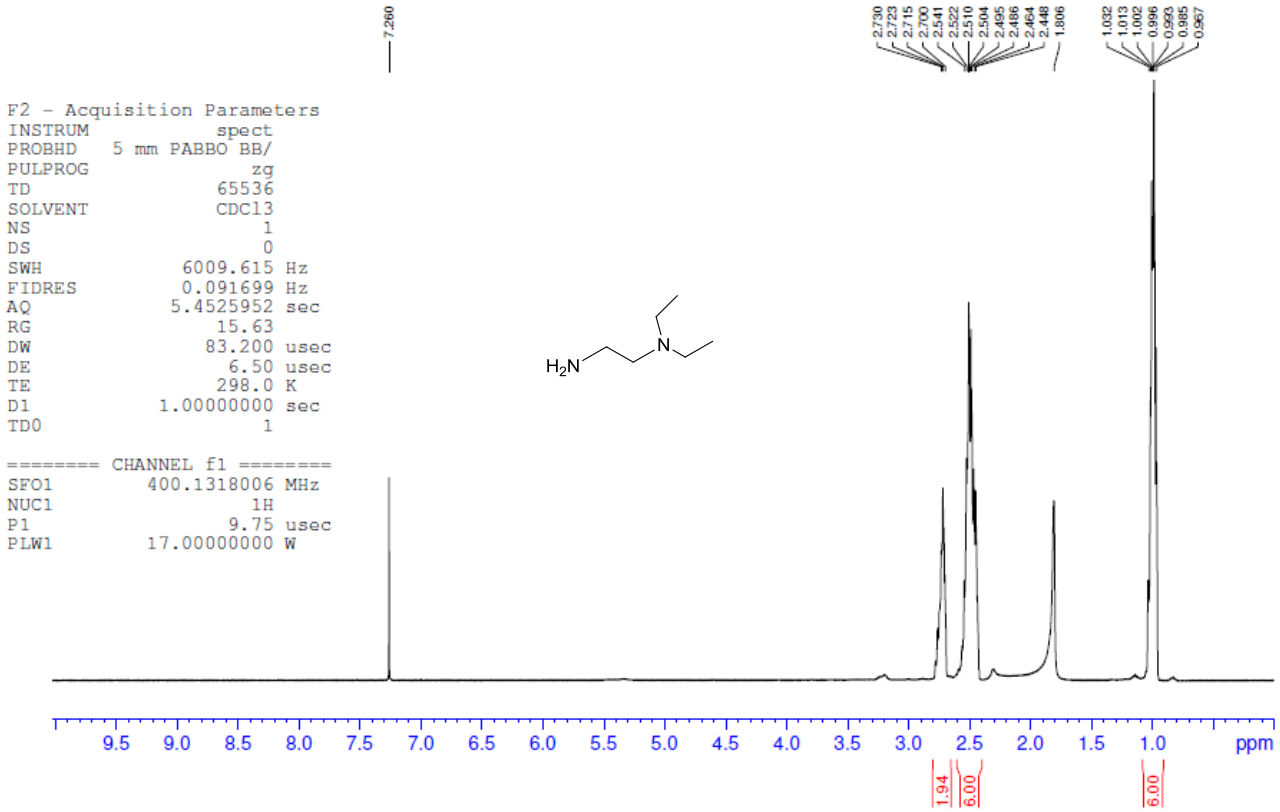
^{13}C NMR spectrum (D_2O, 400 MHz) of Acr^+-A Cl^-.



^{1}H NMR spectrum ($CDCl_3$, 400 MHz) of (Acr-H)-A in mixuture with the corresponding hydrolysis products, identified as 10-methyl-9(10H)-acridone and [2-(diethylamino)ethyl]amine.



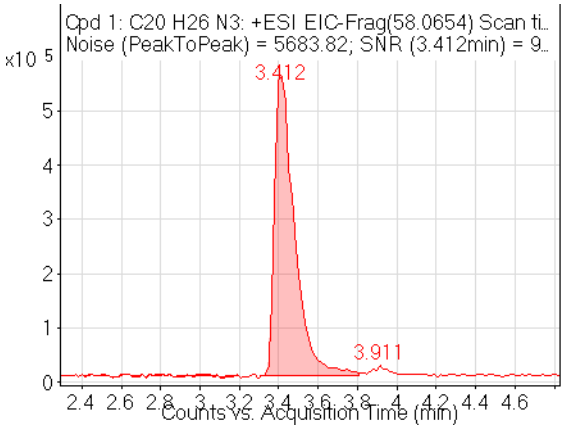
^{1}H NMR spectrum ($CDCl_3$, 400 MHz) of 10-methyl-9(10H)-acridone.



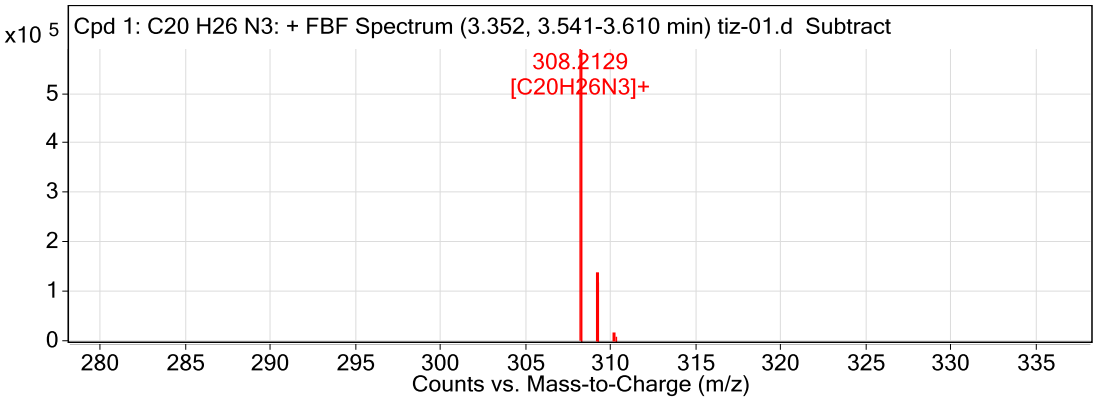
^{1}H NMR spectrum ($CDCl_3$, 400 MHz) of [2-(diethylamino)ethyl]amine.

HPLC-HRMS analysis of Acr^{+}-A Cl^{-}

Chromatogram:



MS spectrum:



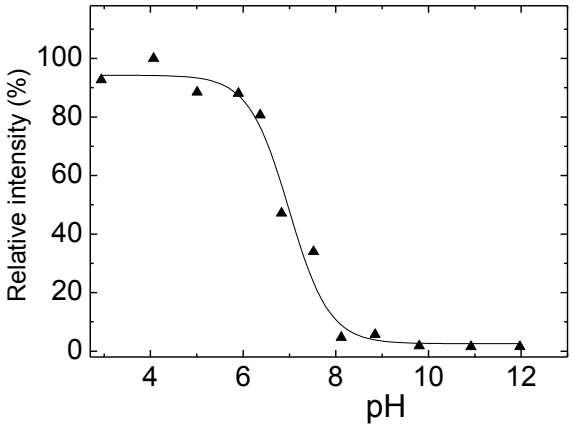


Fig. S1 Relative fluorescence emission (I_F/I_{max}) at 490 nm of Acr^+-A (1.5×10^{-5} M) in H_2O as a function of pH. λ_{exc} = 445 nm.

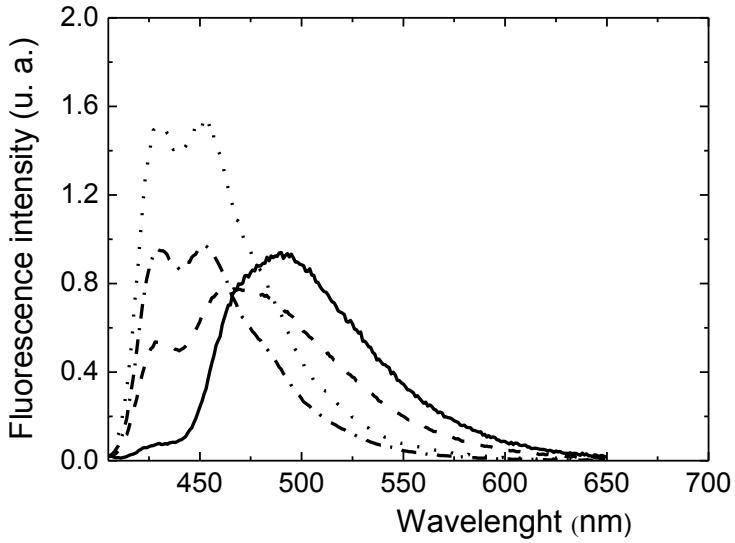


Fig. S2 Fluorescence emission spectra of Acr^+-A (1.5×10^{-5} M) in water recorded at pH 2.91 (solid line), 6.00 (dashed line), 8.84 (dashed and dotted line) and 11.11 (dotted line), λ_{exc} = 355 nm.

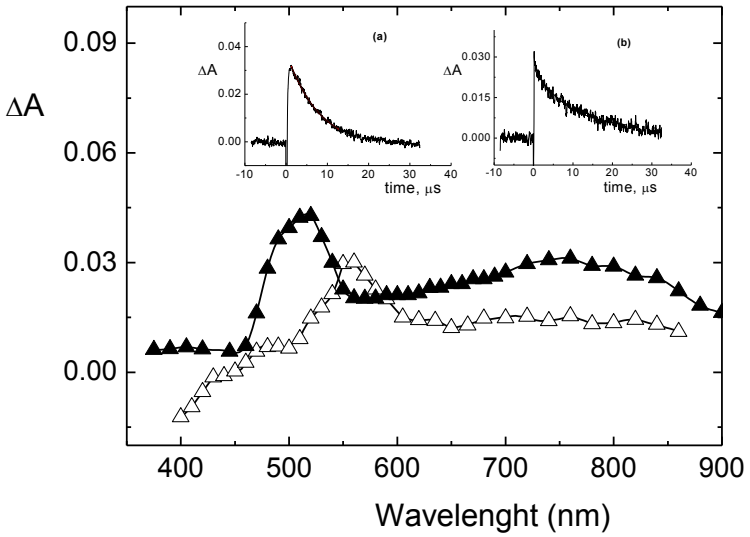


Fig. S3 Absorption spectra of Acr^+-A (5.5×10^{-4} M) in N_2-saturated H_2O recorded 1.1 μs after the laser pulse at pH 8.0 (▲) and 12.0 (△); λ_{exc} = 355 nm. Inset: decays recorded at 510 (a) and 750 nm (b) in N_2-saturated solution at pH 8.0.

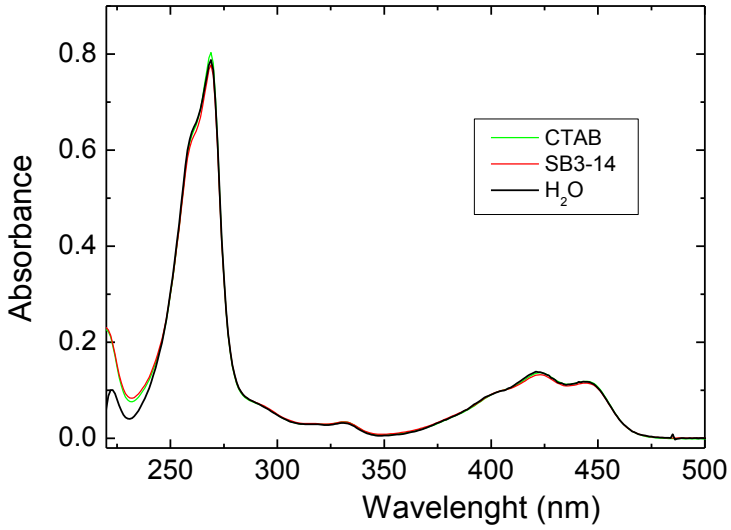


Fig. S4 Absorption spectra of Acr^+-A (1.6×10^{-5} M) at pH 5.90 recorded in H_2O, 0.01 M CTAB and 0.01 M SB3-14.

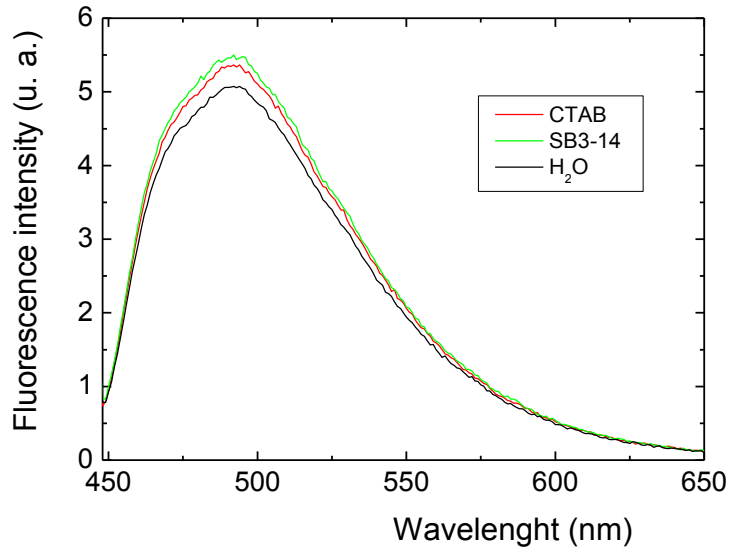


Fig. S5 Fluorescence spectra of Acr^{+}-A (1.6×10^{-6} M) at pH 5.90 recorded in H_2O, 0.01 M CTAB and 0.01 M SB3-14; λ_{exc} = 445 **nm.**

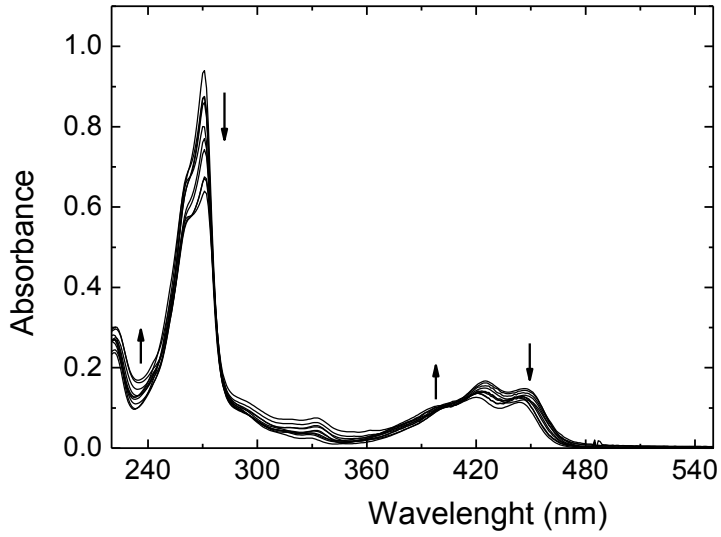


Fig. S6 Absorption spectra of Acr^{+}**-**A (1.6×10^{-5} M) recorded in 0.01 M SDS at different pH values (2.96÷11.23); the arrows are in the direction of decreasing pH.

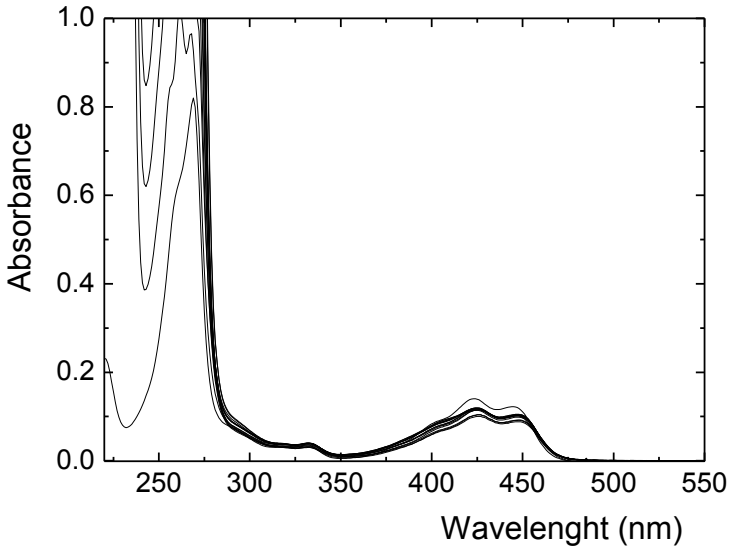


Fig. S7 Absorption spectra of Acr^{+}-A (1.6×10^{-5} M) recorded in 0.02 M SOBS at different pH values (2.79÷11.80).

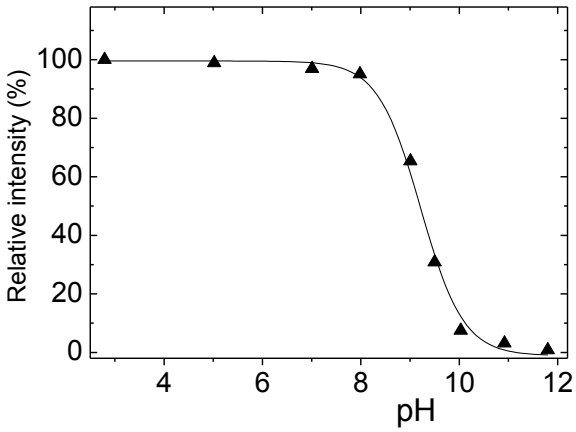


Fig. S8 Relative fluorescence emission ((I_F/I_{max}) at 490 nm of Acr^{+}-A (1.5×10^{-5} M) in the presence of SDS (0.01 M) as a function of pH. λ_{exc} = 445 nm.

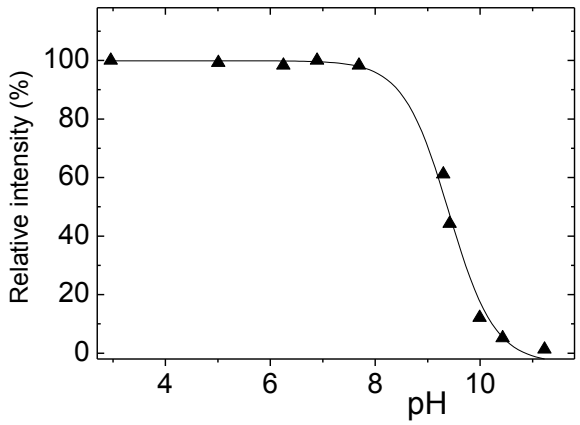


Fig. S9 Relative fluorescence emission (I_F/I_{max}) at 490 nm of Acr^+-A (1.5×10^{-5} M) in the presence of SOBS (0.02 M) as a function of pH. λ_{exc} = 445 nm.