

solvent	Dielectric constant (ϵ_s)	k_r/s^{-1}	Fluorescence lifetime/ns	Fluorescence quantum yield	Φ_{t-c}
HEX	1.89	1.02×10^9	0.93	0.95	0.065
CHX	2.04		0.81		0.076
DBE	3.08		0.73		$0.1(0.43)^b$
EtAc	6.08	1.01×10^9	0.76	0.77	0.16
GTA	7.11	0.89×10^9	0.83	0.74	0.12
THF	7.52	0.78×10^9	0.58	0.83	0.15
MeCl ₂	8.93	0.94×10^9	0.87	0.82	0.14
Ace	21.0	0.78×10^9	0.69	0.54	0.16
ACN	36.6	0.85×10^9	0.68	0.58	$0.16(0.48)^b$
DMF	38.25	0.8×10^9	0.73	0.59	
DMSO	47.24	0.91×10^9	0.75	0.68	0.13
PC	66.14	0.95×10^9	0.69	0.66	0.18

II

solvent	Dielectric constant(ϵ_s)	k_r/s^{-1}	Fluorescence lifetime/ns	Fluorescence quantum yield	Φ_{t-c}
HEX	1.89	0.93×10^9	0.80	0.67	0.21
CHX	2.04	0.86×10^9	0.71	0.61	0.23
DBE	3.08	0.51×10^9	0.73	0.37	$0.26(0.07)^b$
GTA	7.11				0.22
THF	7.52	0.44×10^9	0.58	0.26	0.36
MeCl ₂	8.93	0.42×10^9	0.52	0.22	0.36
Ace	21.0	0.47×10^9	0.4	0.19	0.37
ACN	36.6	0.23×10^9	0.44	0.1	$0.35(0.09)^b$
DMF	38.25				
DMSO	47.24	0.36×10^9	0.5	0.18	0.4
PC	66.14	0.26×10^9	0.5	0.13	0.4

III

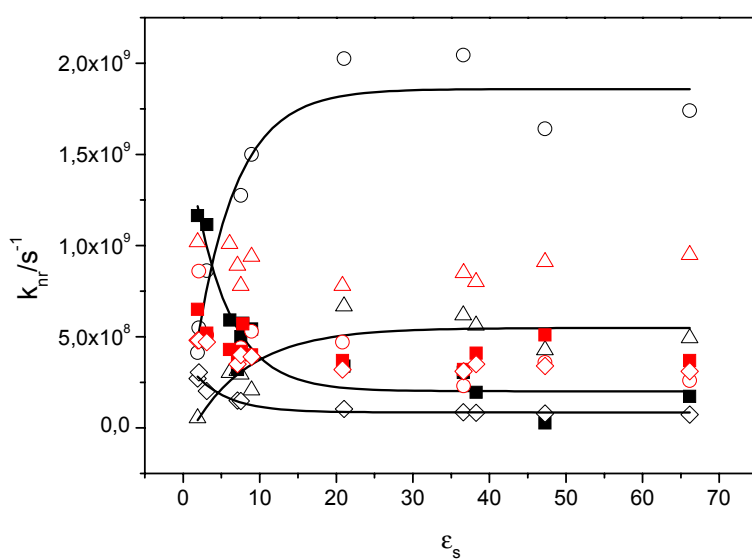
solvent	Dielectric constant(ϵ_s)	k_r/s^{-1}	Fluorescence lifetime/ns	Fluorescence quantum yield	Φ_{t-c}
HEX	1.89	0.65×10^9	0.55	0.36	
DBE	3.08	0.52×10^9	0.61	0.32	$0.32(0.05)^b$
EtAc	6.09	0.43×10^9	0.98	0.42	0.32
GTA	7.11	0.36×10^9	1.47	0.53	0.22
THF	7.52	0.44×10^9	1.06	0.47	$0.33(0.05)^b$
MeCl ₂	8.93	0.4×10^9	1.07	0.42	$0.31(0.05)^b$
Ace	21.0	0.37×10^9	1.42	0.52	0.26
ACN	36.6	0.32×10^9	1.61	0.51	$0.14(0.27)^b$
DMF	38.25	0.41×10^9	1.64	0.68	0.18
DMSO	47.24	0.51×10^9	1.86	0.95	0.14
PC	66.14	0.37×10^9	1.85	0.68	
EtI	7.82	0.57×10^9	0.87	0.5	
MeOH	33.0	0.48×10^9	1.57	0.75	
EtOH	25.3	0.47×10^9	1.55	0.74	
PrOH	20.8	0.47×10^9	1.33	0.63	
BuOH	17.84	0.39×10^9	$1.29(0.042)^a$	0.5	
PeOH	15.13	0.42×10^9	$1.24(0.066)^a$	0.52	
HxOH	13.03	0.43×10^9	$1.21(0.095)^a$	0.52	
HpOH	11.75	0.36×10^9	$1.18(0.129)^a$	0.42	
OcOH	10.30			0.41	

IV

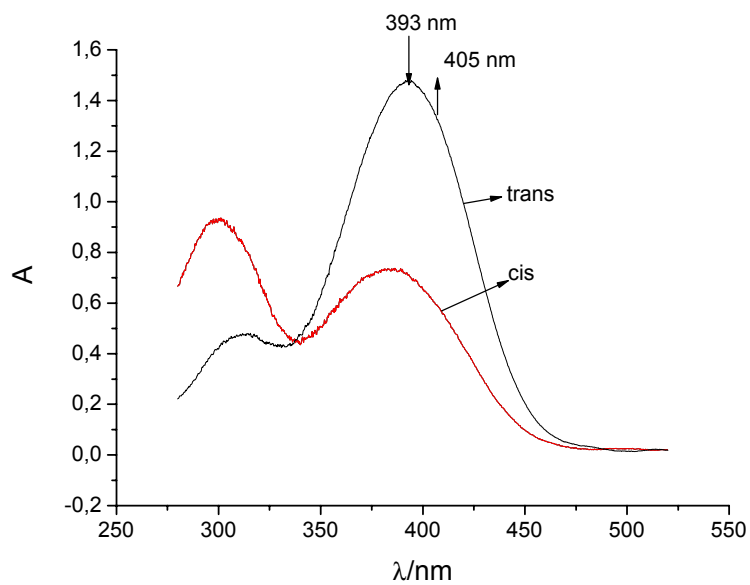
solvent	Dielectric constant(ϵ_s)	k_r/s^{-1}	Fluorescence lifetime/ns	Fluorescence quantum yield	Φ_{t-c}
HEX	1.89	0.48×10^9	1.33	0.64	0.13
CHX	2.04	0.48×10^9	1.28	0.61	0.1
DBE	3.08	0.47×10^9	1.48	0.7	$0.14(0.4)^b$

GTA	7.11	0.35×10^9	2.0	0.7	0.03
THF	7.52	0.4×10^9	1.83	0.73	$0.1(0.4)^b$
MeCl ₂	8.93	0.39×10^9	1.9	0.74	$0.09(0.3)^b$
Ace	21.0	0.32×10^9	2.4	0.75	0.06
ACN	36.6	0.31×10^9	2.55	0.78	$0.05(0.24)^b$
DMF	38.25	0.35×10^9	2.3	0.81	0.04
DMSO	47.24	0.34×10^9	2.4	0.81	
PC	66.14	0.31×10^9	2.6	0.81	0.06

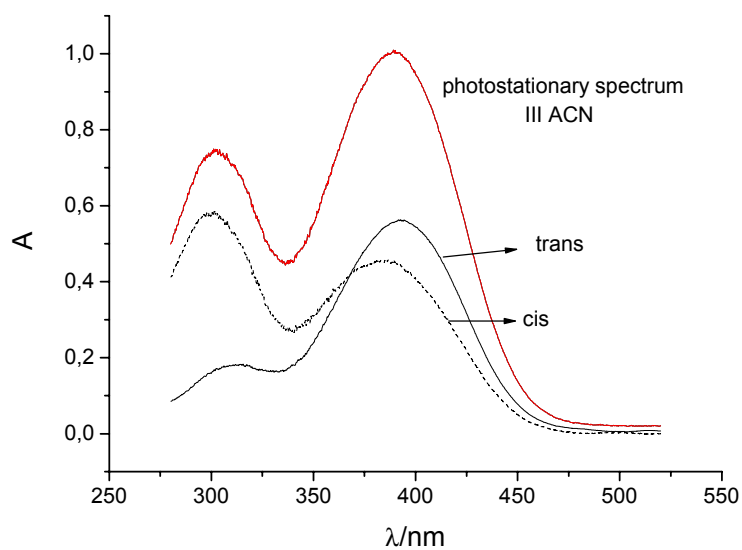
Table 1. Fluorescence lifetimes (error of estimation less than 2%) and fluorescence and isomerisation quantum yields (error of estimation less than 10%) of the investigated systems in solvents of different polarities. a) data in parantheses – short time component of the decay function of III in alcohols b) data in parantheses – quantum yields of cis-trans isomerisation calculated using eq. 3.



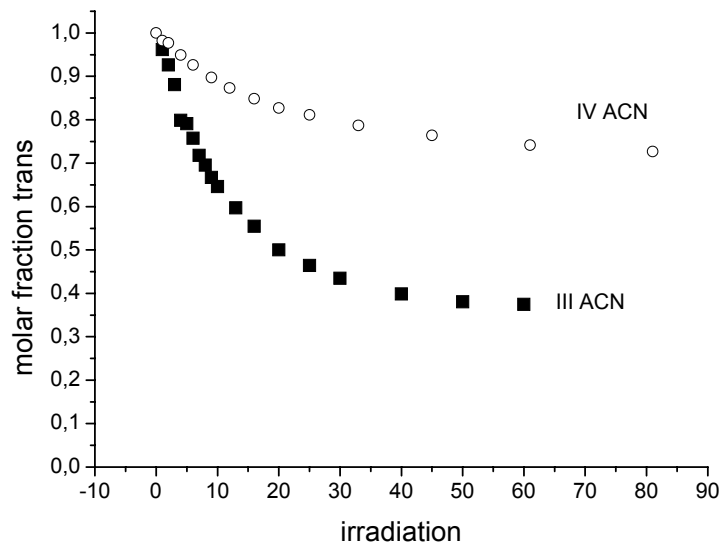
Aux 1. Solvent polarity dependence of nonradiative (black symbols) and radiative (red symbols) deactivation rate constants for I (triangles), II (circles), III (squared) and IV (diamonds).



Aux. 2. Spectra of the trans and cis isomer of III in ACN (Fischer's analysis).



Aux. 3. Separation of the photostationary spectrum of III in acetonitrile (red line) into the trans and cis contributions.



Aux. 4. Molar fraction of the trans isomer of III and IV in acetonitrile as a function of the irradiation time.