Electronic supplementary materials *Mendeleev Commun.*, 2019, **29**, 426–428

Intermolecular interactions between natural humic substances and tricyclic antidepressants

Ekaterina D. Mordvinova, Marina V. Parkhats, Yong Chen and Ivan P. Pozdnyakov

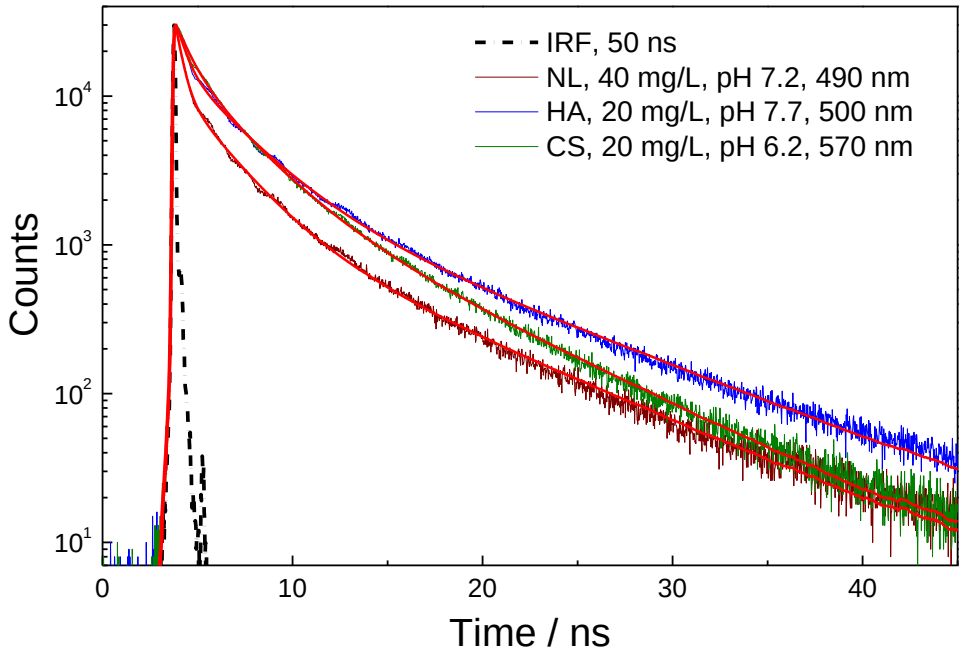

Figure S1 Kinetic curves of HS fluorescence upon excitation at 375 nm with the best three exponential fits with parameters listed in Table S1. Dotted line is the instrument response function of the setup.

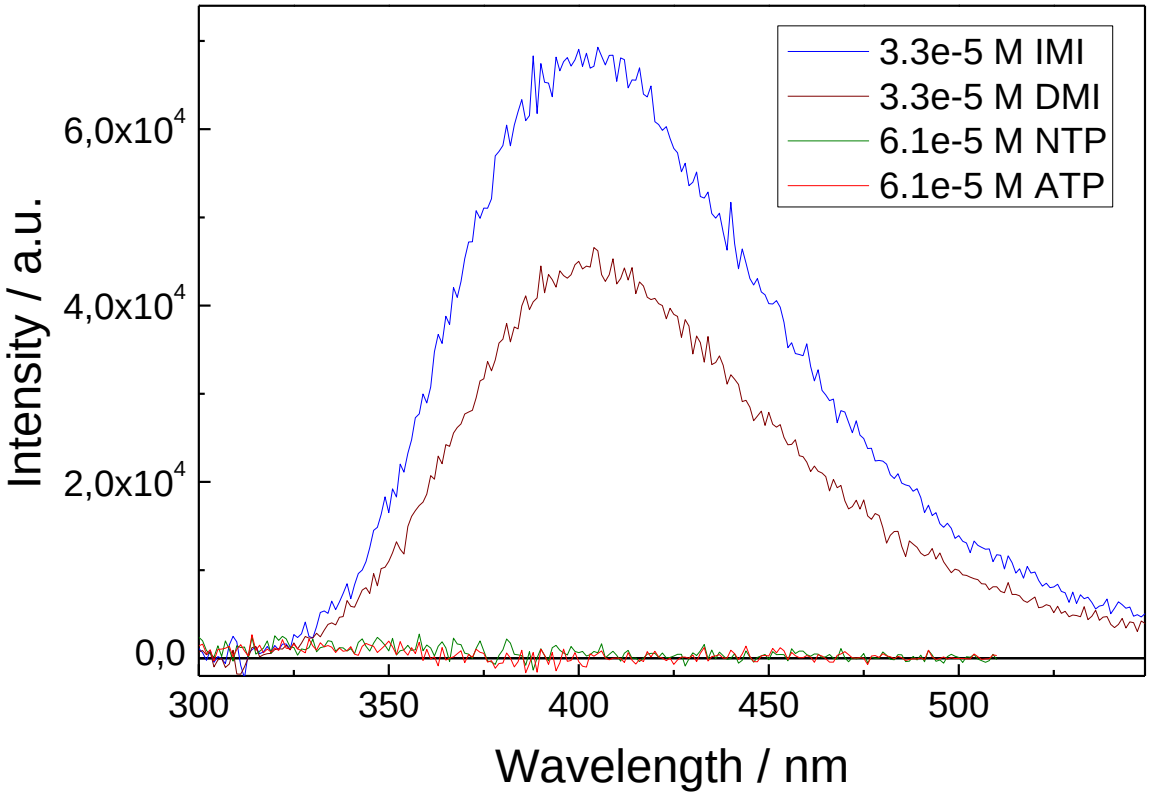

Figure S2 Fluorescence spectra of TAs. For DMI and IMI concentration was 3.3×10^{-5} mol dm^{-3}, λ_{ex} = 280 nm; for ATP and NTP concentration was 6.1×10^{-5} mol dm^{-3}, λ_{ex} = 260 nm.

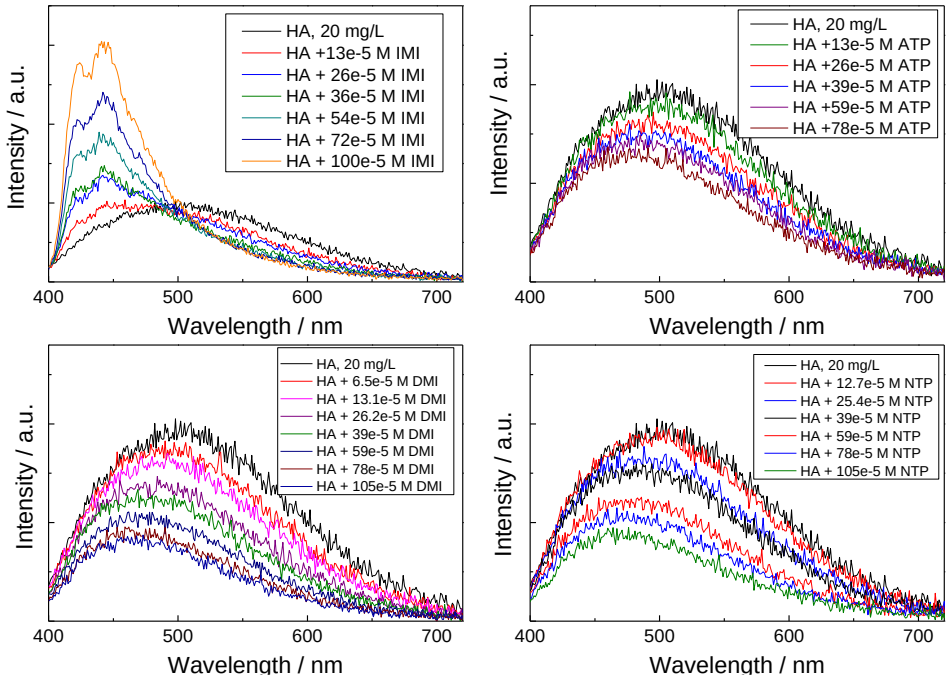

Figure S3 Fluorescence spectra of HA in presence of different TAs. [HA] = 20 mg dm^{-3}, pH 6.8, λ_{ex} = 365 nm.

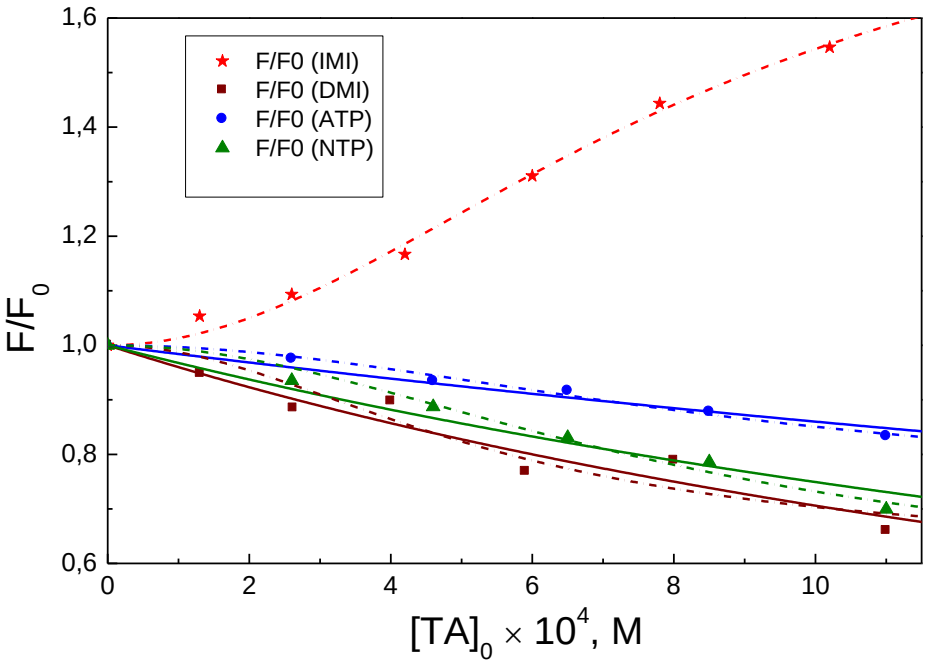

Figure S4 The dependence of ratio F/F_0 upon concentration of TAs (points) for NL. Solid curves are the best fits using eq. (2) with parameters listed in Table 1. Dotted curves are the best fits using eq. (3) with parameters listed in Table 2.

Table S1 Photophysical properties of studied HS.

HS	τ_1 (A_1) / ns	τ_2 (A_2) / ns	τ_3 (A_3) / ns	τ_{av} / ns
CS	0.73 (0.46)	2.5 (0.44)	7.0 (0.10)	2.1
HA	0.46 (0.55)	2.7 (0.37)	8.7 (0.08)	1.9
NL	0.34 (0.70)	2.4 (0.25)	7.8 (0.05)	1.2

Table S2 Stern-Volmer paramiters (K_{SV}) and rate constants of dynamic quenching (k_q) calculated by eq. (1).

TAs	IMI		DMI		ATP		NTP	
HS	K_{SV} (mol^{-1} dm^3)	k_q (mol^{-1} dm^3 s^{-1})	K_{SV} (mol^{-1} dm^3)	k_q (mol^{-1} dm^3 s^{-1})	K_{SV} (mol^{-1} dm^3)	k_q (mol^{-1} dm^3 s^{-1})	K_{SV} (mol^{-1} dm^3)	k_q (mol^{-1} dm^3 s^{-1})
CS	6100	2.9×10^{12}	8400	4.0×10^{12}	1000	4.8×10^{11}	4500	2.1×10^{12}
HA	400	2.1×10^{11}	1800	9.5×10^{11}	810	4.2×10^{11}	1300	6.8×10^{11}
NL	370	3.1×10^{11}	440	3.7×10^{11}	170	1.4×10^{11}	380	3.1×10^{11}