Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supporting Information

Solvatochromic properties of 3,6-di-tert-butyl-8H-indolo[3,2,1-de]acridin-8-one

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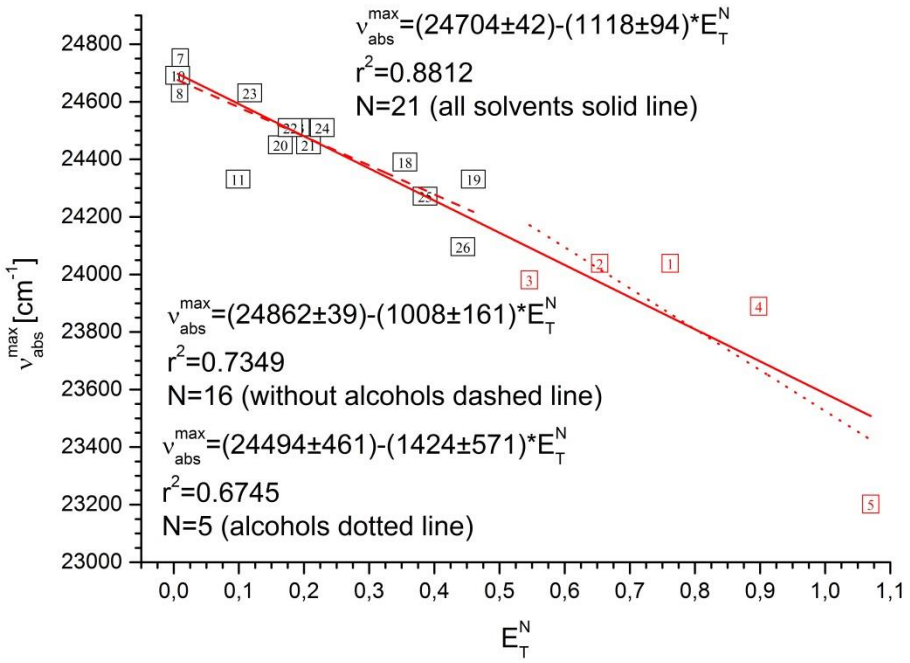

Fig. 1 ESI The dependence of absorption maximum ν_{abs}^{max} *versus* Reichardt`s solvent polarity parameter E_T^N. The solid line represents the best fit to all data points (all solvents), dashed line to non-protic solvents and dotted line to protic solvents.

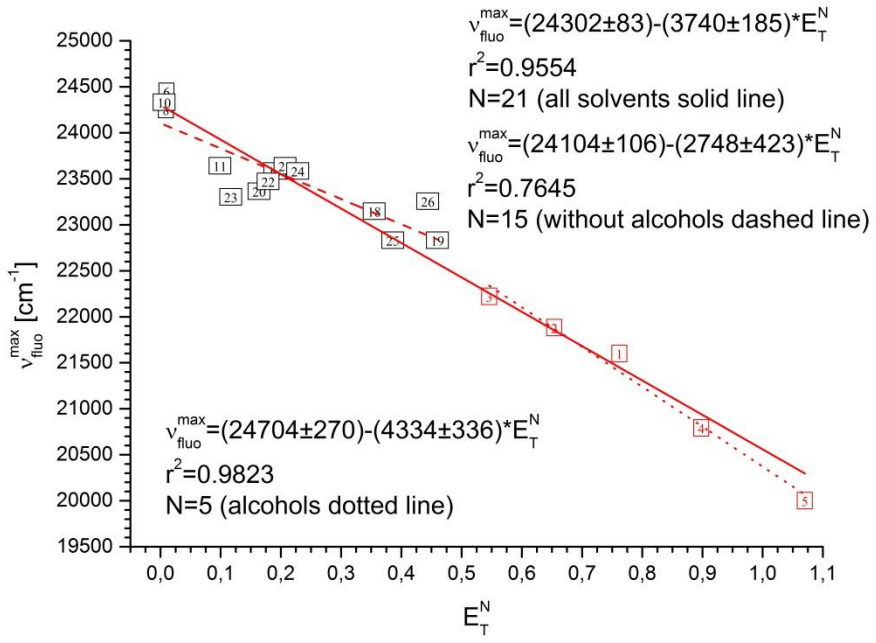

Fig. 2 ESI The dependence of emission maximum ν_{fluo}^{max} *versus* Reichardt`s solvent polarity parameter E_T^N. The solid line represents the best fit to all data points (all solvents), dashed line to non-protic solvents and dotted line to protic solvents.

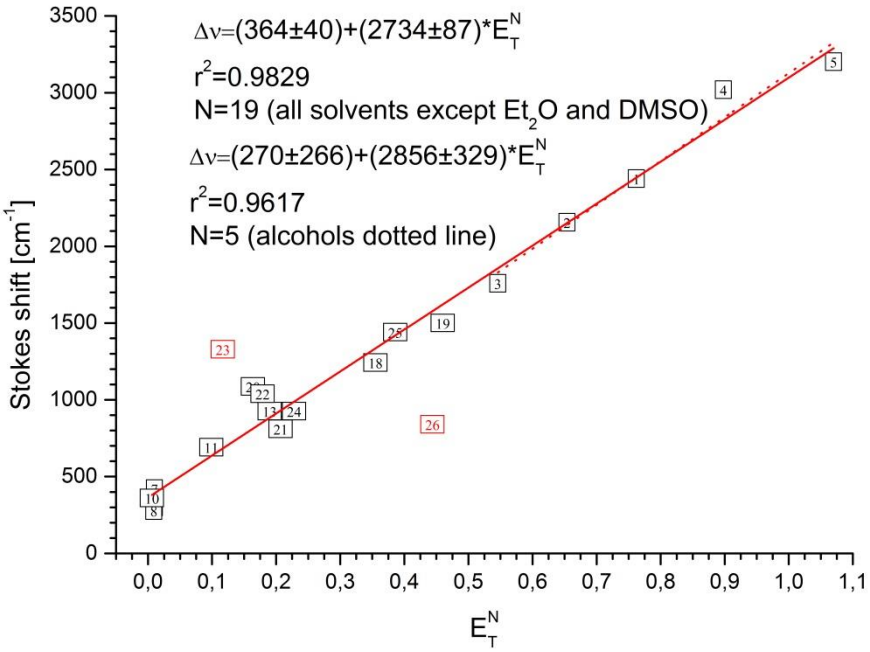

Fig. 3 ESI The dependence of Stokes shift *versus* Reichardt`s solvent polarity parameter E_T^N. The solid line represents the best fit to all data points (all solvents), whereas dotted line to protic solvents.

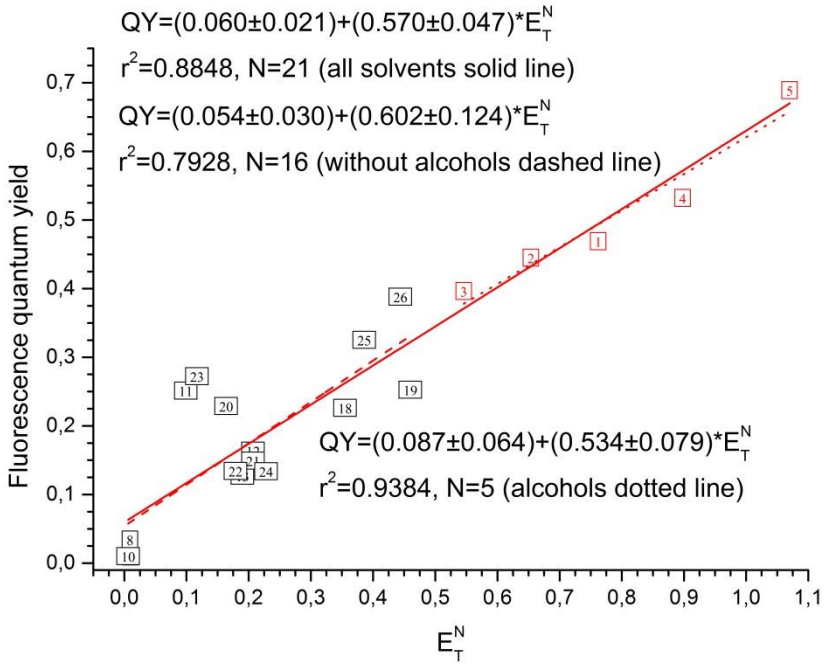

Fig. 4 ESI The dependence of fluorescence quantum yield *versus* Reichardt`s solvent polarity parameter E_T^T. The solid line represents the best fit to all data points (all solvents), dashed line to non-protic solvents and dotted line to protic solvents.

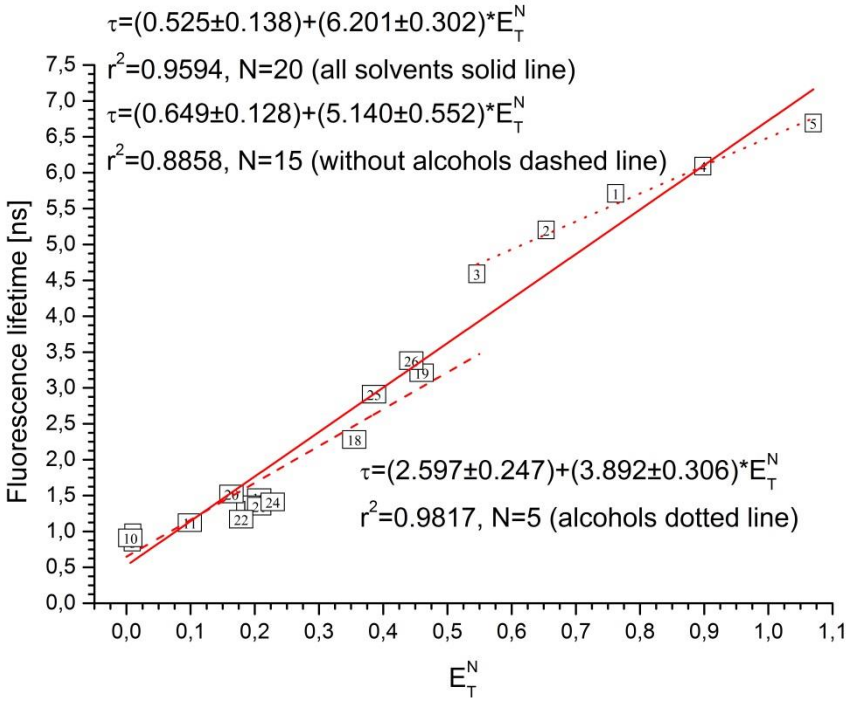

Fig. 5 ESI The dependence of fluorescence lifetime *versus* Reichardt`s solvent polarity parameter E_T^N. The solid line represents the best fit to all data points (all solvents), dashed line to non-protic solvents and dotted line to protic solvents.

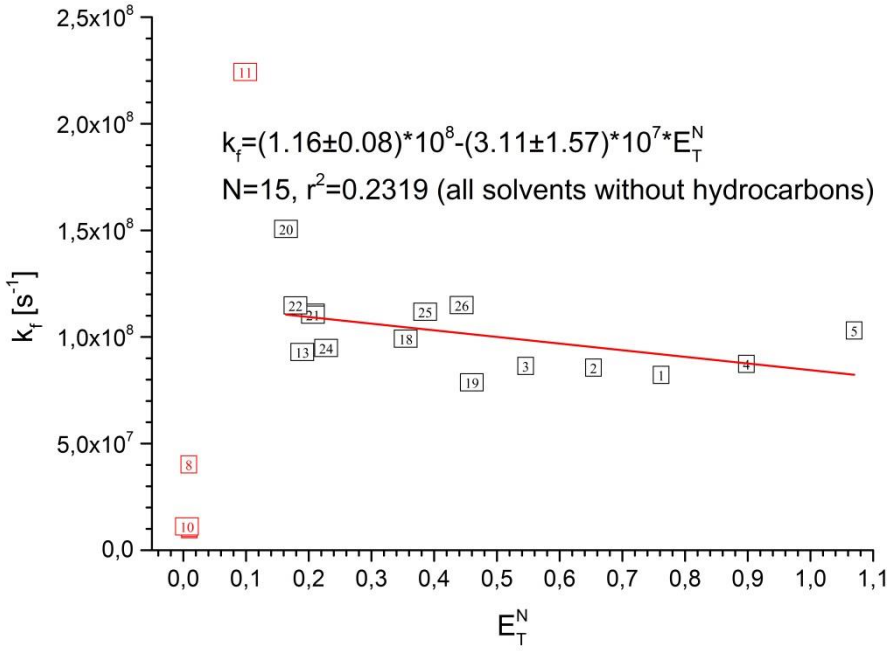

Fig. 6 ESI The dependence of fluorescence rate constant *versus* Reichardt`s solvent polarity parameter E_T^N. Points marked in red were not taking into account in analysis.

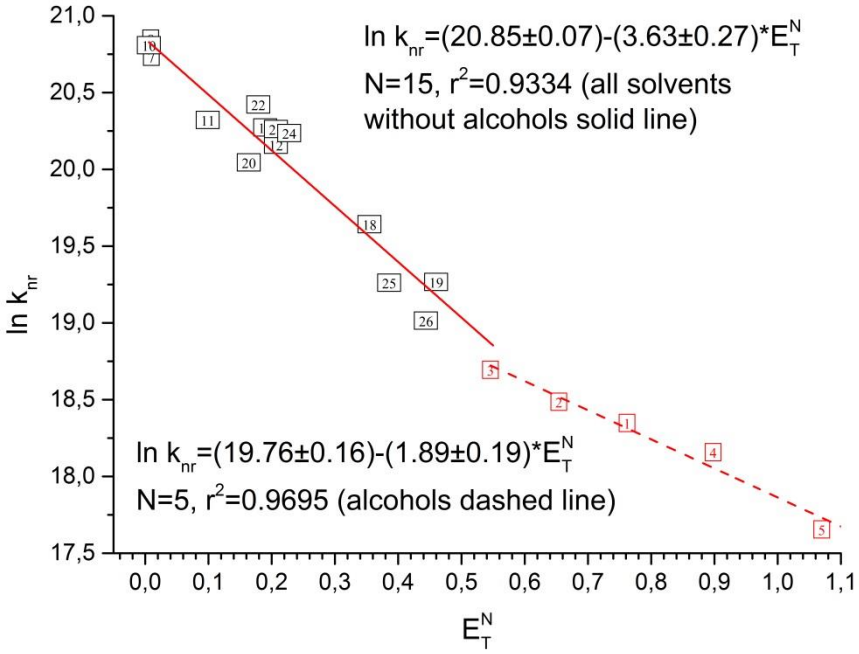

Fig. 7 ESI The dependence of logarithm of non-radiative rate constant ln(k_{nr}) *versus* Reichardt`s solvent polarity parameter E_T^N. The solid line represents the best fit to non-protic solvents and dashed line to protic solvents.

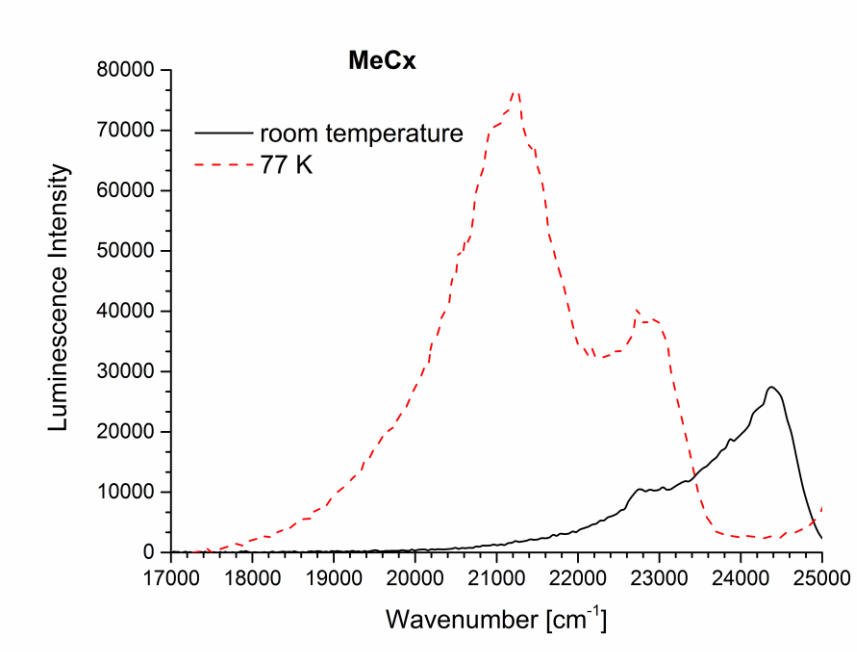

Fig. 8 ESI Luminescence spectrum of 3,6-di-tert-butyl-8H-indolo[3,2,1-de]acridin-8-one (dashed line) in methylcyclohexane measured at 77K and fluorescence spectrum (solid line) measured at the same conditions at room temperature.

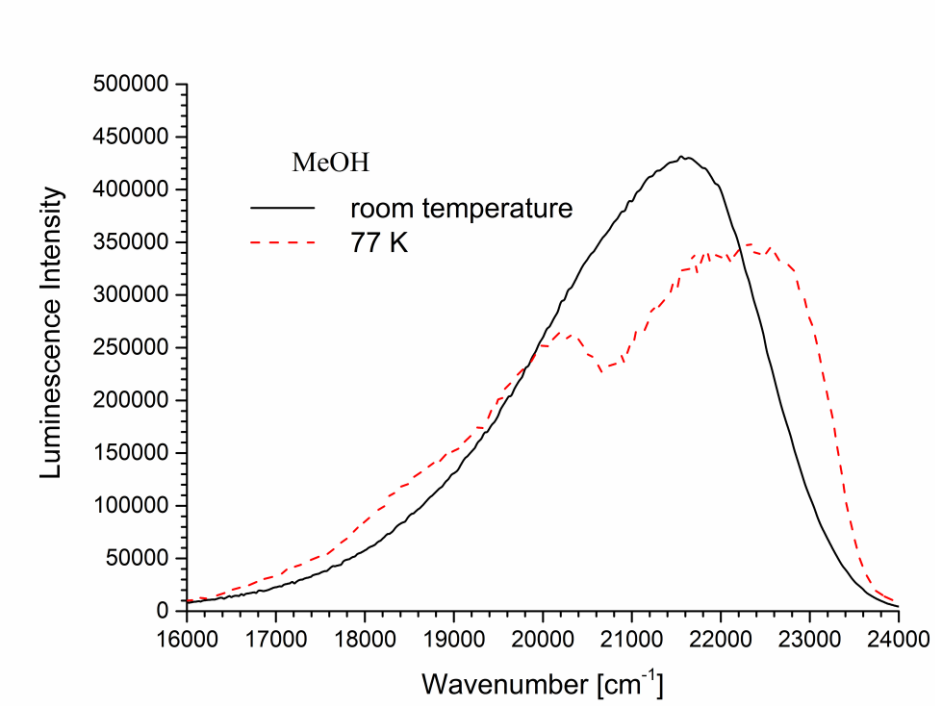

Fig. 9 ESI Luminescence spectrum of 3,6-di-tert-butyl-8H-indolo[3,2,1-de]acridin-8-one (dashed line) in MeOH measured at 77K and fluorescence spectrum (solid line) measured at the same conditions at room temperature.

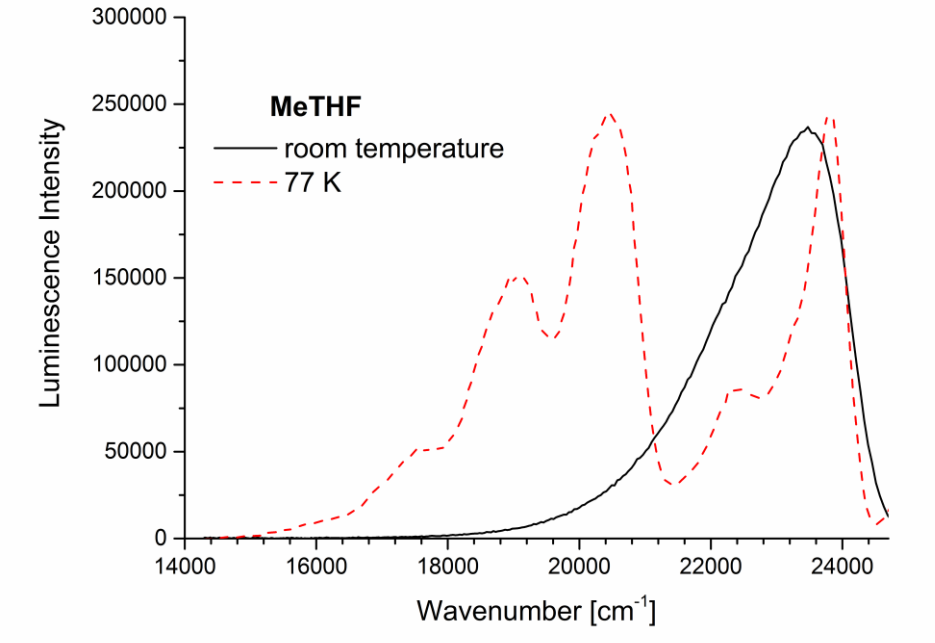

Fig. 10 ESI Luminescence spectrum of 3,6-di-tert-butyl-8H-indolo[3,2,1-de]acridin-8-one (dashed line) in MeTHF measured at 77K and fluorescence spectrum (solid line) measured at the same conditions at room temperature.

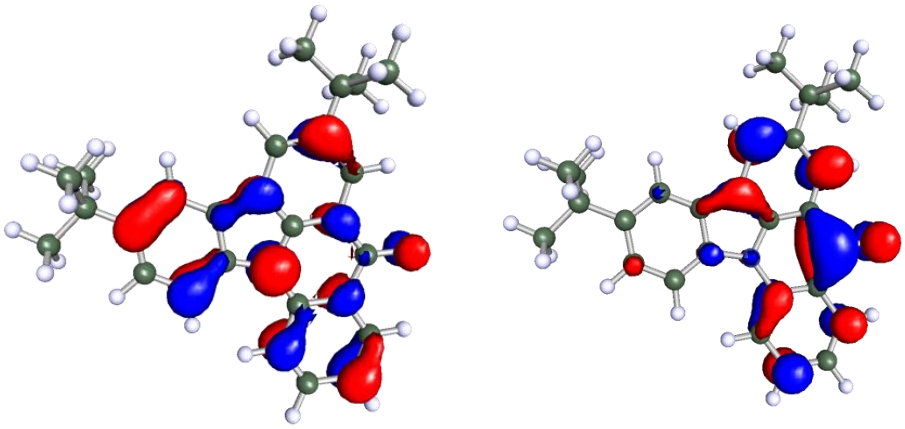

Fig. 11 ESI HOMO (left) and LUMO (right) orbitals of 3,6-di-tert-butyl-8H-indolo[3,2,1-de]acridin-8-one. The orbitals were obtained using TURBOMOLE v. 6.3 program (TD DFT, def2_TZVP basis set and pbe0 functional). A comparison of the electron density in both orbitals indicates on the charge transfer from an amino group to the carbonyl groups.

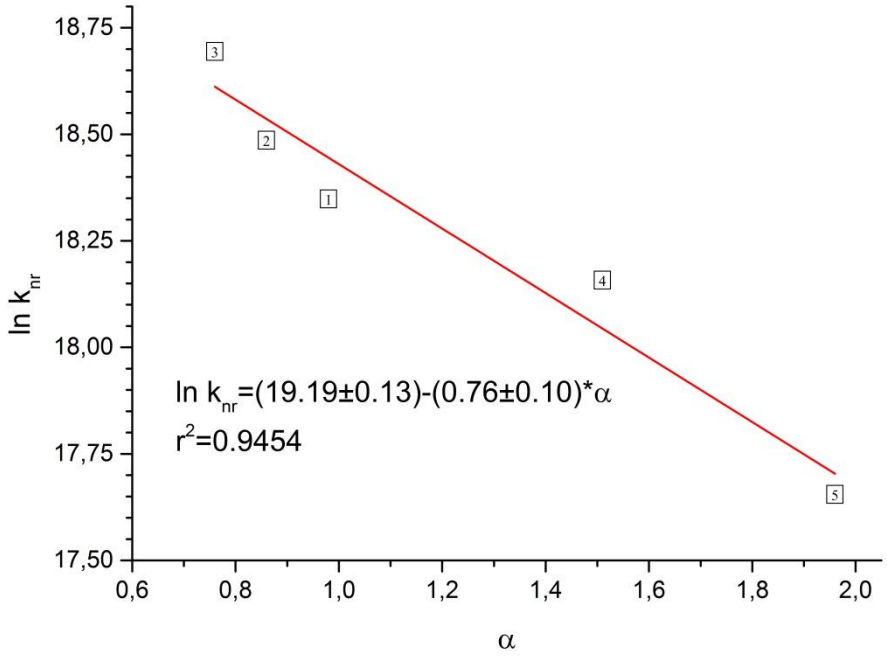

Fig.12 ESI The dependence of logarithm of non-radiative rate constant $\ln(k_{nr})$ in alcohols *versus* Kamlet-Taft solvent acidity parameter (α).

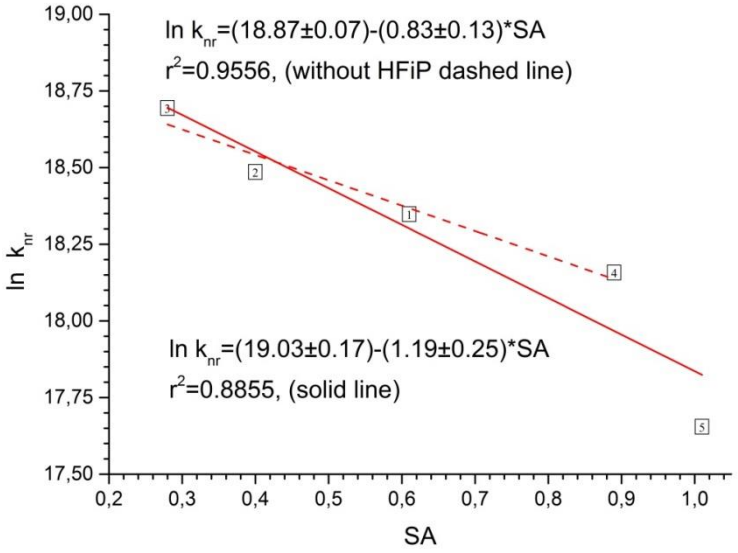

Fig. 13 ESI The dependence of logarithm of non-radiative rate constant ln(k_{nr}) in alcohols *versus* Catalan solvent acidity parameter (SA). A solid line for all alcohols studied, dashed line without HFiP.

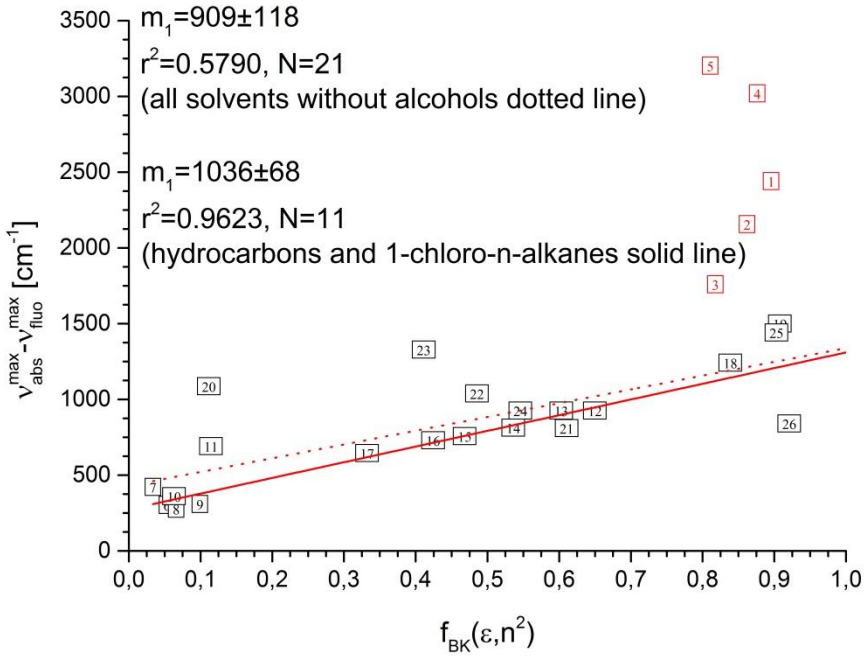

Fig. 14 ESI The dependence of Stokes shift *versus* Bilot-Kawski solvent polarizability function. The solid line represents the best fit to hydrocarbons and 1-chloro-alkanes solvents whereas dotted line to all non-protic solvents.

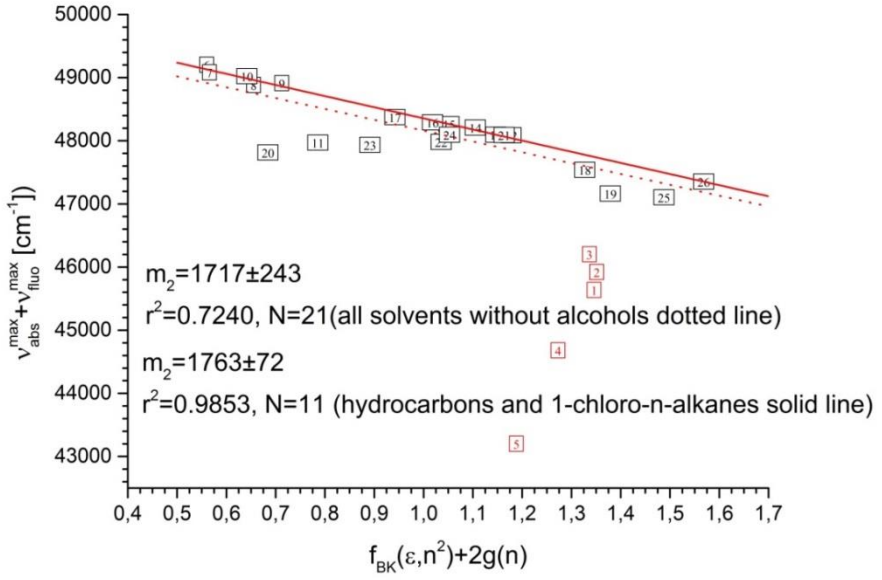

Fig. 15 ESI The dependence of (ν_{abs}^{max}+ ν_{fluo}^{max}) *versus* $f_{BK}(\varepsilon,n^2)+2g(n)$ function. The solid line represents the best fit to hydrocarbons and 1-chloro-alkanes solvents, whereas dotted line to all non-protic solvents. The red points represent protic solvents which were not taking into account in analysis.

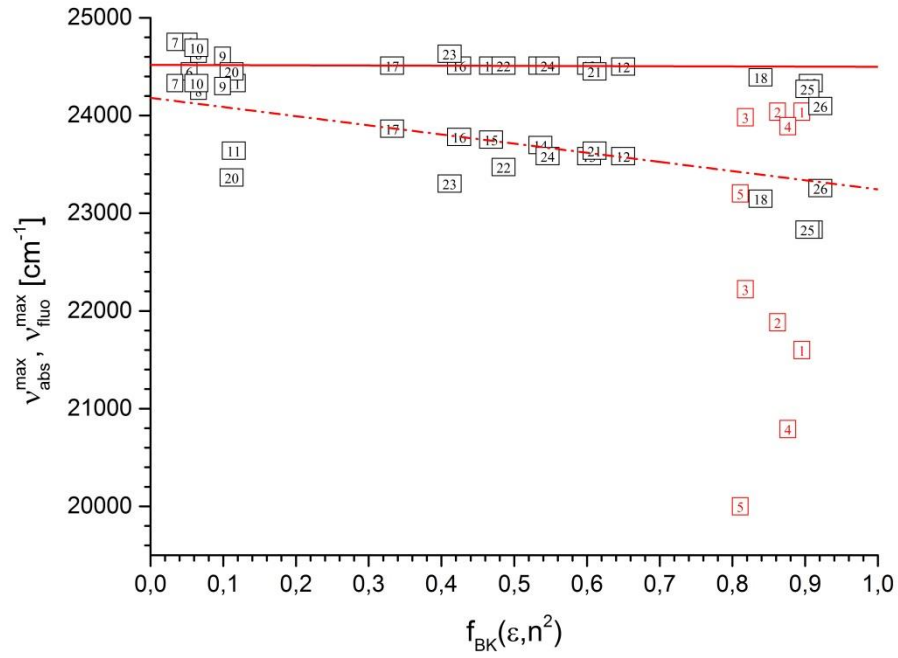

Fig. 16 ESI The dependence of ν_{abs}^{max} and ν_{fluo}^{max} on the Bilot-Kawski polarizability function for 1-chloro-alkanes solvents. The solid line represents the best fit of absorption maximum, whereas dashed line of emission maximum. The red points represent protic solvents.