Supporting Information for

Dimethyl yellow-based colorimetric chemosensors for "naked eye" detection of Cr^{3+} in aqueous media *via* test papers

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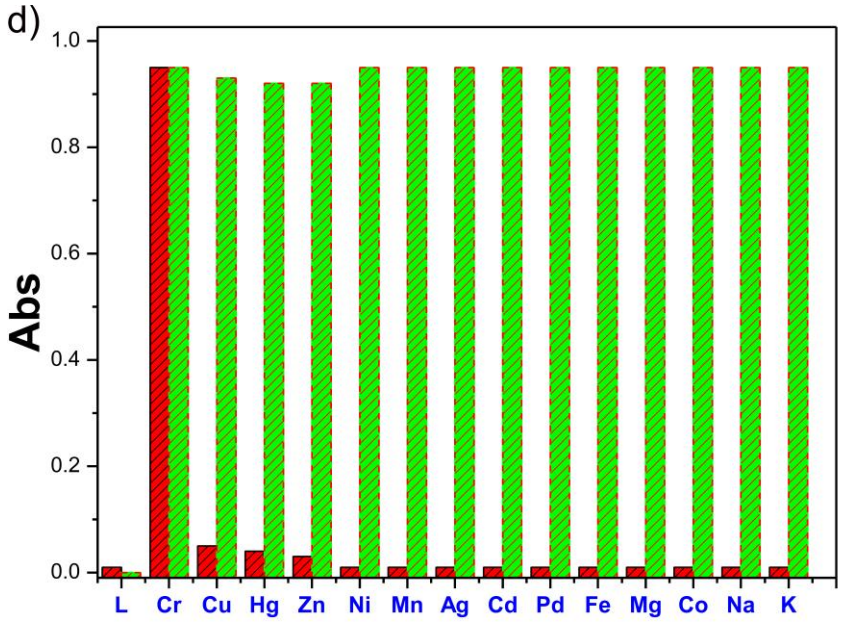
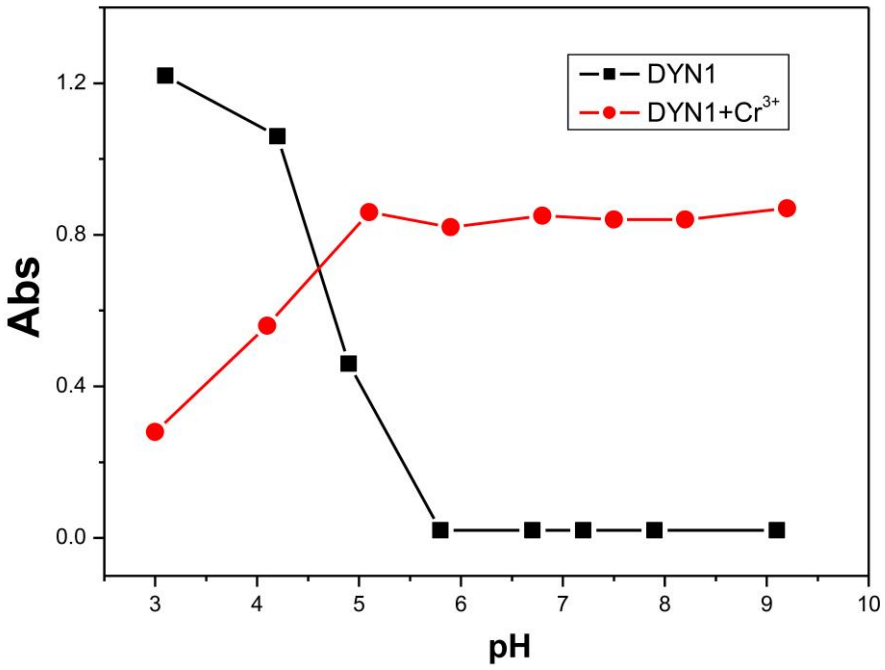
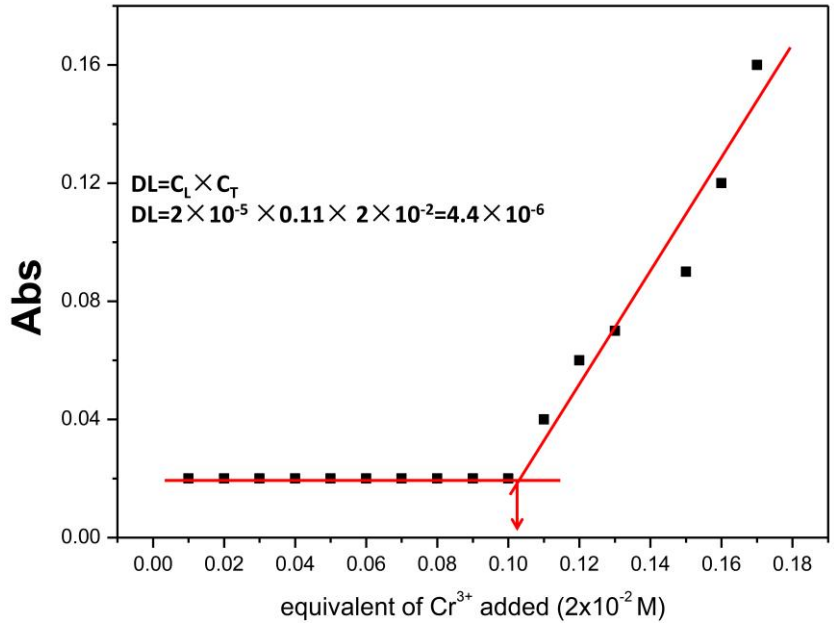
1. **Figure S1** UV-Vis spectra of **DYN1** (2×10^{-5} M) in CH_3CN:H_2O (1:1, v/v, containing 0.01 M HEPES, pH=7.21) upon titration with 3.0 equiv. of perchlorate salts of metals. The red bars represent the absorbance of **DYN1** in the presence of 2 equiv. of cations of interest, respectively. The green bars represent the absorbance that occur upon the subsequent addition of 2 equiv. of Cr^{3+} to the above mentioned solutions, respectively. The absorbance measurements were recorded at 516 nm.



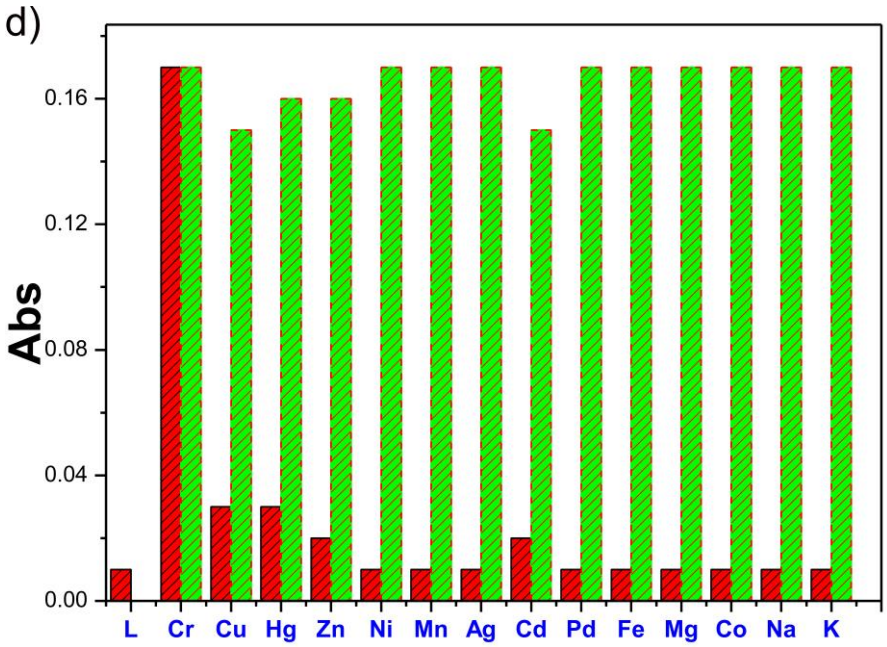
2. **Figure S2** The pH-dependent absorbance response of **DYN1** (20 μM) and **DYN1**+Cr^{3+} in CH_3CN/H_2O (1:1, v/v). The absorbance measurements were recorded at 516 nm.



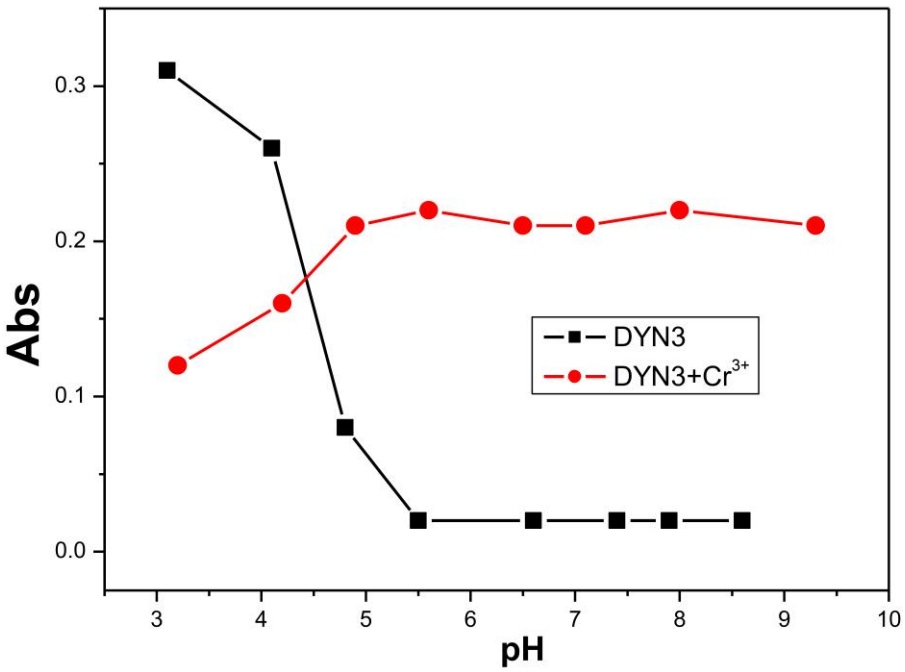
3. **Figure S3** Calculations for detection limit of **DYN1** with Cr^{3+}. The absorbance measurements were recorded at 516 nm.



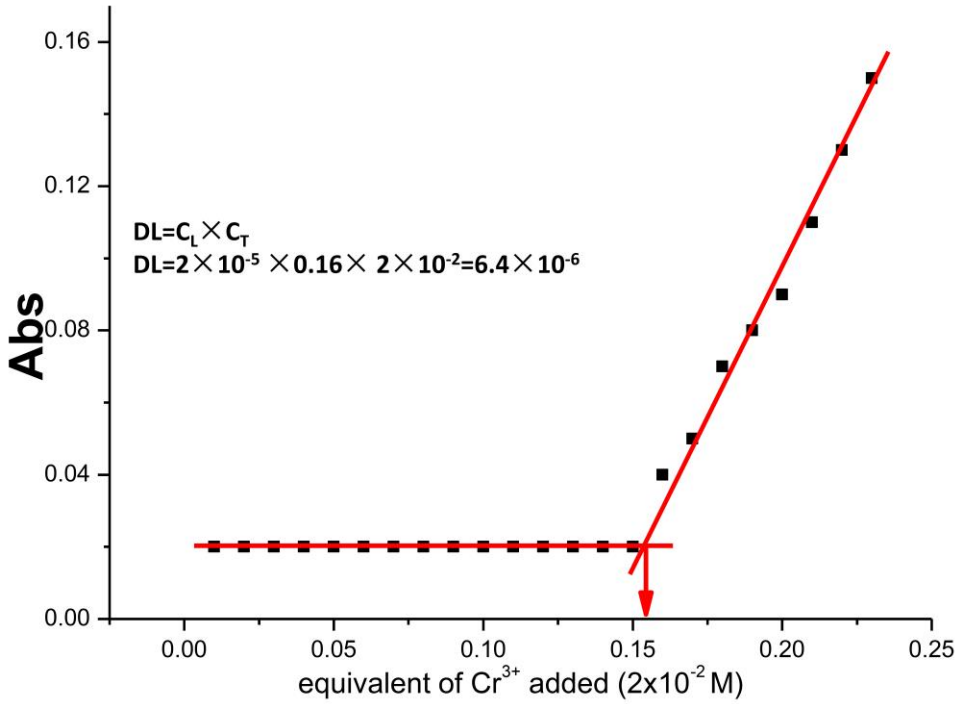
4. **Figure S4** UV-Vis spectra of **DYN3** (2×10^{-5} M) in CH_3CN:H_2O (1:1, v/v, containing 0.01 M HEPES, pH=7.21) upon titration with 3.0 equiv. of perchlorate salts of metals. The red bars represent the absorbance of **DYN3** in the presence of 3 equiv. of cations of interest, respectively. The green bars represent the absorbance that occur upon the subsequent addition of 3 equiv. of Cr^{3+} to the above mentioned solutions, respectively. The absorbance measurements were recorded at 526 nm.



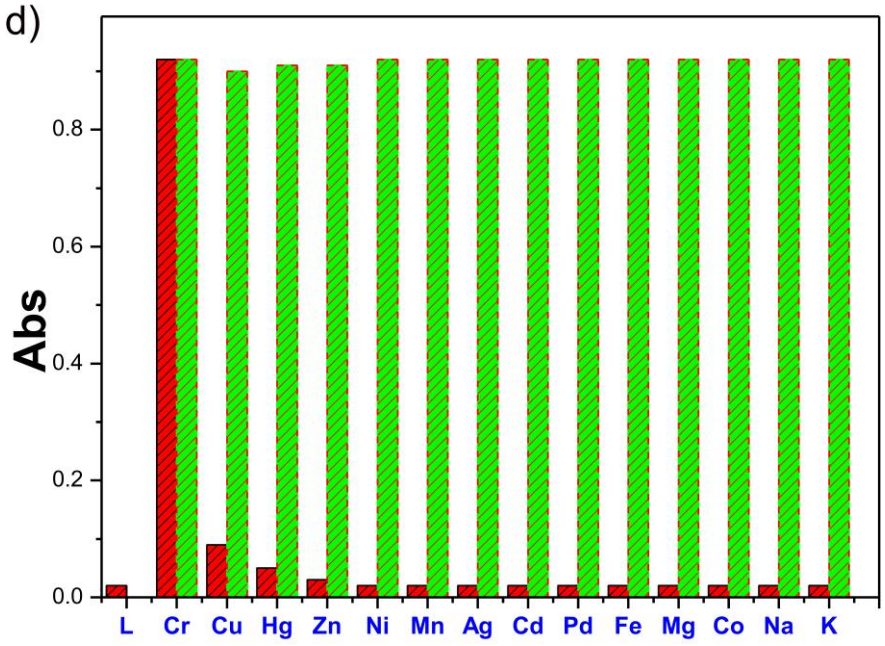
5. Figure S5 The pH-dependent absorbance response of **DYN3** (20 μM) and **DYN3**+Cr^{3+} in CH_3CN/H_2O (1:1, v/v). The absorbance measurements were recorded at 526 nm.



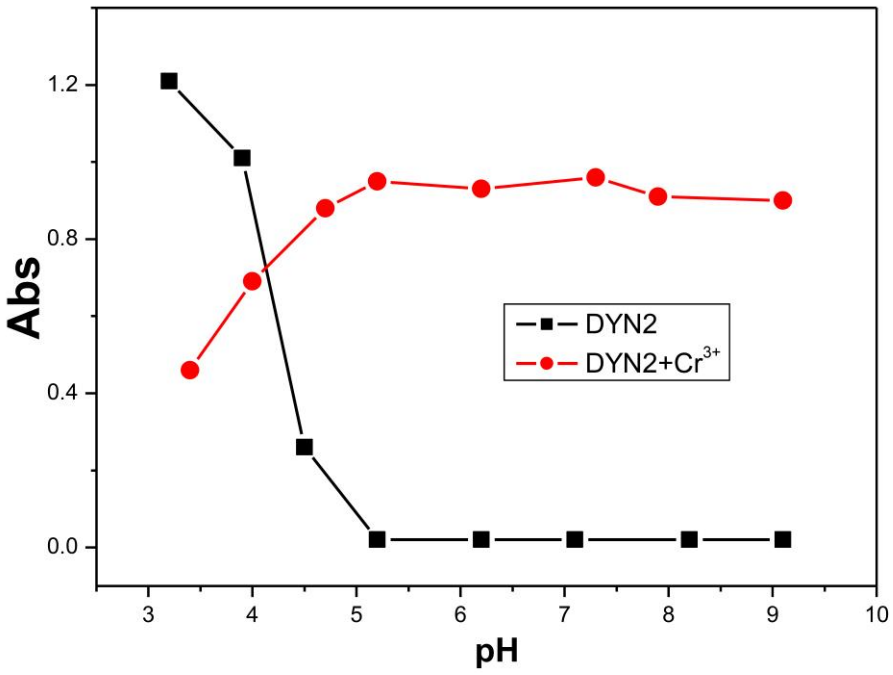
6. Figure S6 Calculations for detection limit of **DYN3** with Cr^{3+}. The absorbance measurements were recorded at 526 nm.



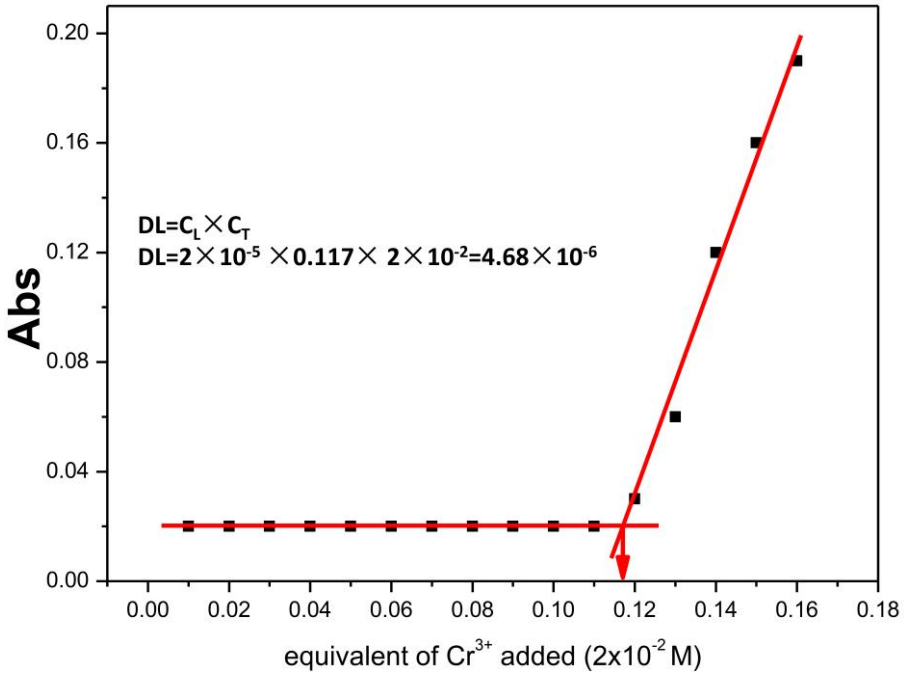
7. Figure S7 UV-Vis spectra of **DYN2** (2×10^{-5} M) in CH_3CN:H_2O (1:1, v/v, containing 0.01 M HEPES, pH=7.21) upon titration with 2.0 equiv. of perchlorate salts of metals. The red bars represent the absorbance of **DYN2** in the presence of 2 equiv. of cations of interest, respectively. The green bars represent the absorbance that occur upon the subsequent addition of 2 equiv. of Cr^{3+} to the above mentioned solutions, respectively. The absorbance measurements were recorded at 516 nm.



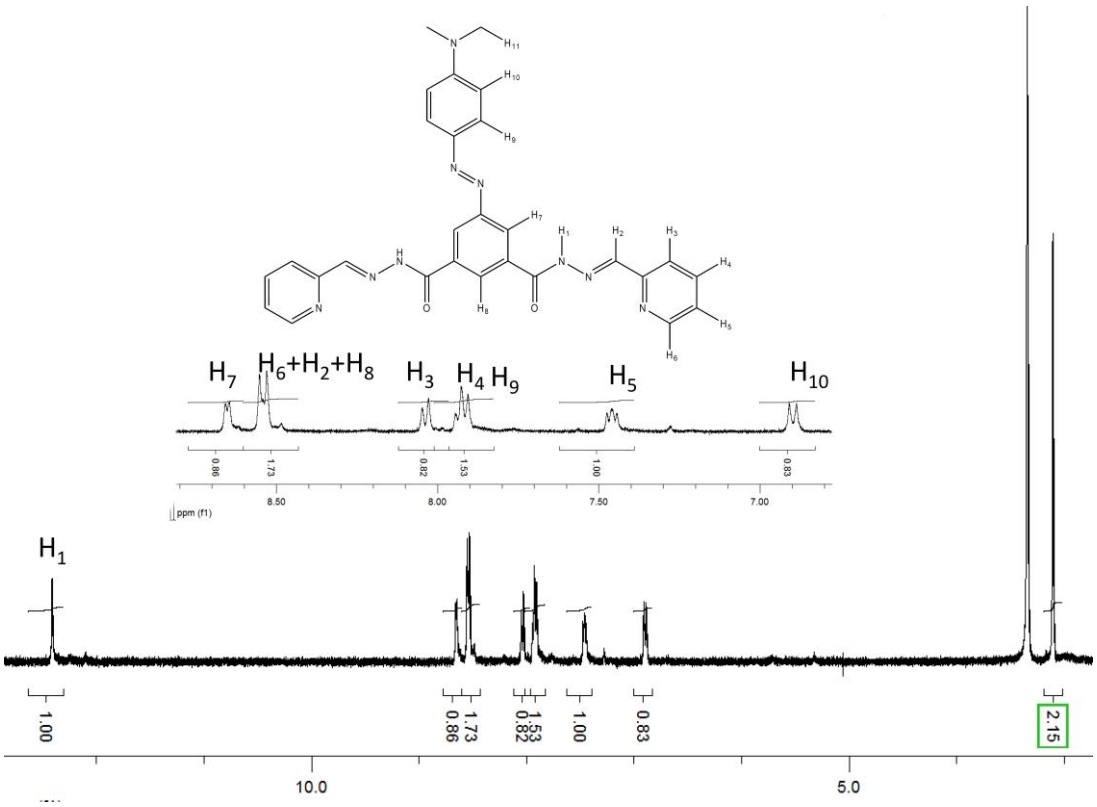
8. Figure S8 The pH-dependent absorbance response of **DYN2** (20 μM) and **DYN2**+Cr^{3+} in CH_3CN/H_2O (1:1, v/v). The absorbance measurements were recorded at 516 nm.



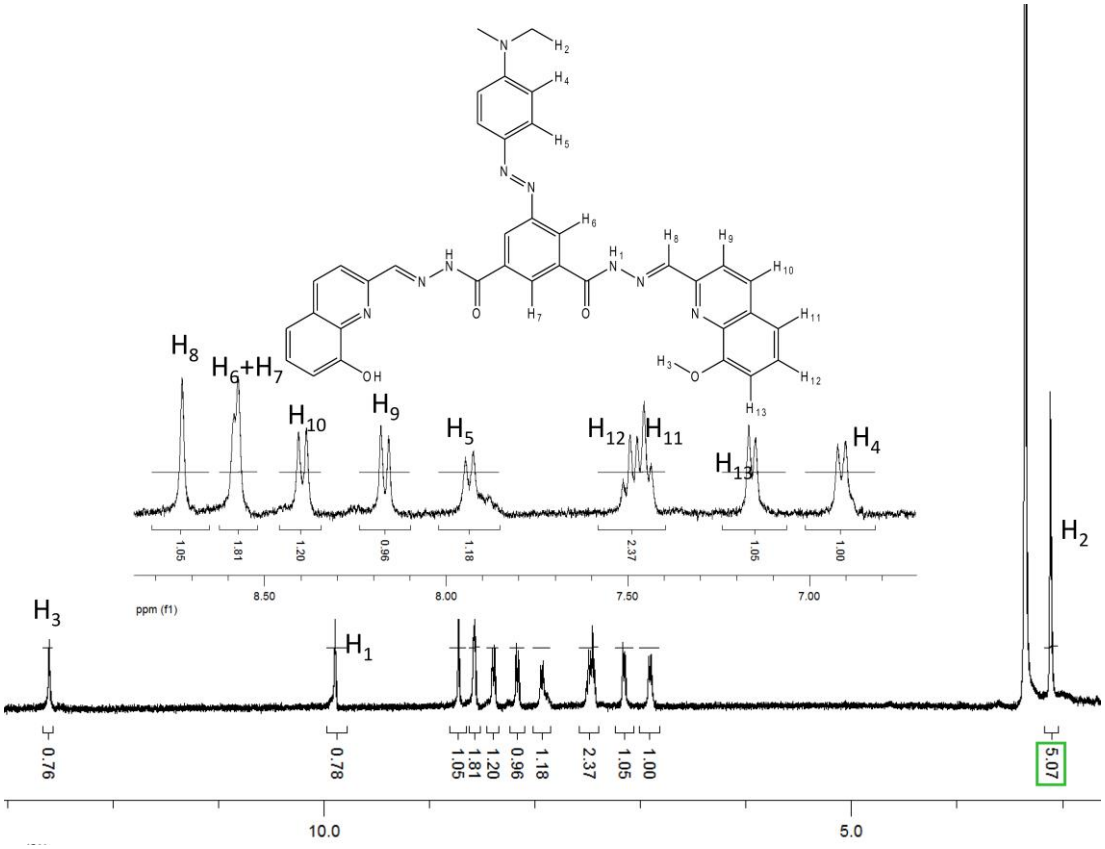
9. Figure S9 Calculations for detection limit of **DYN2** with Cr^{3+}. The absorbance measurements were recorded at 516 nm.



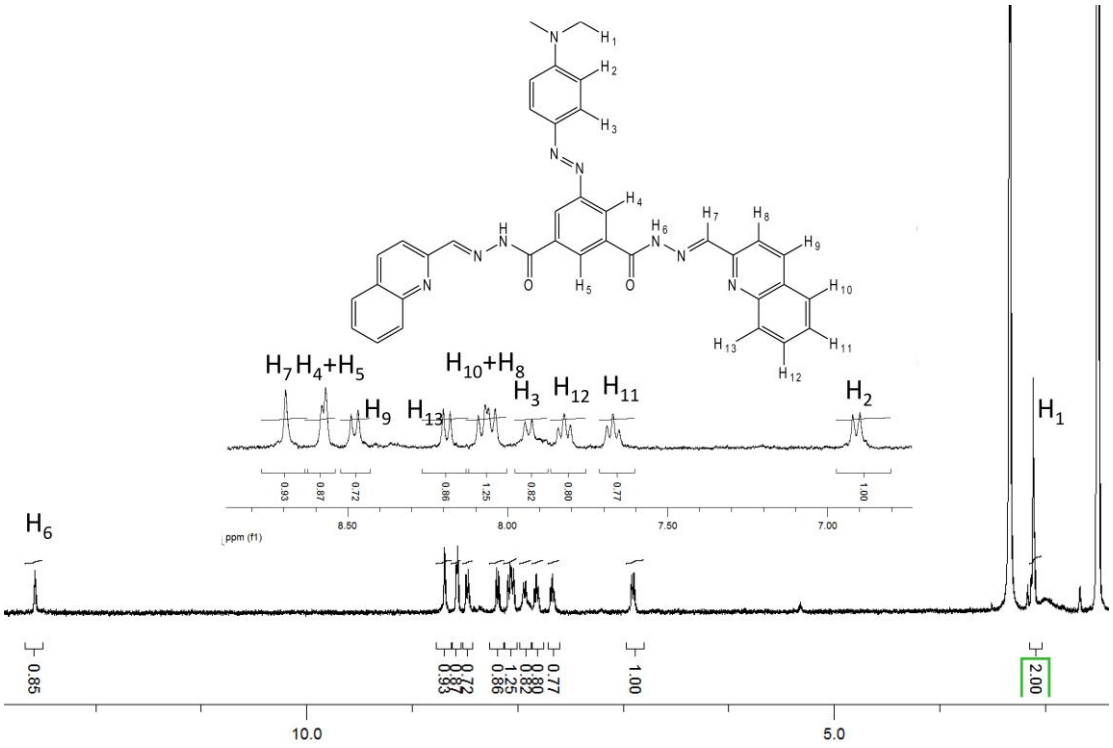
10. Figure S10 ^{1}H-NMR spectra of **DYN1**



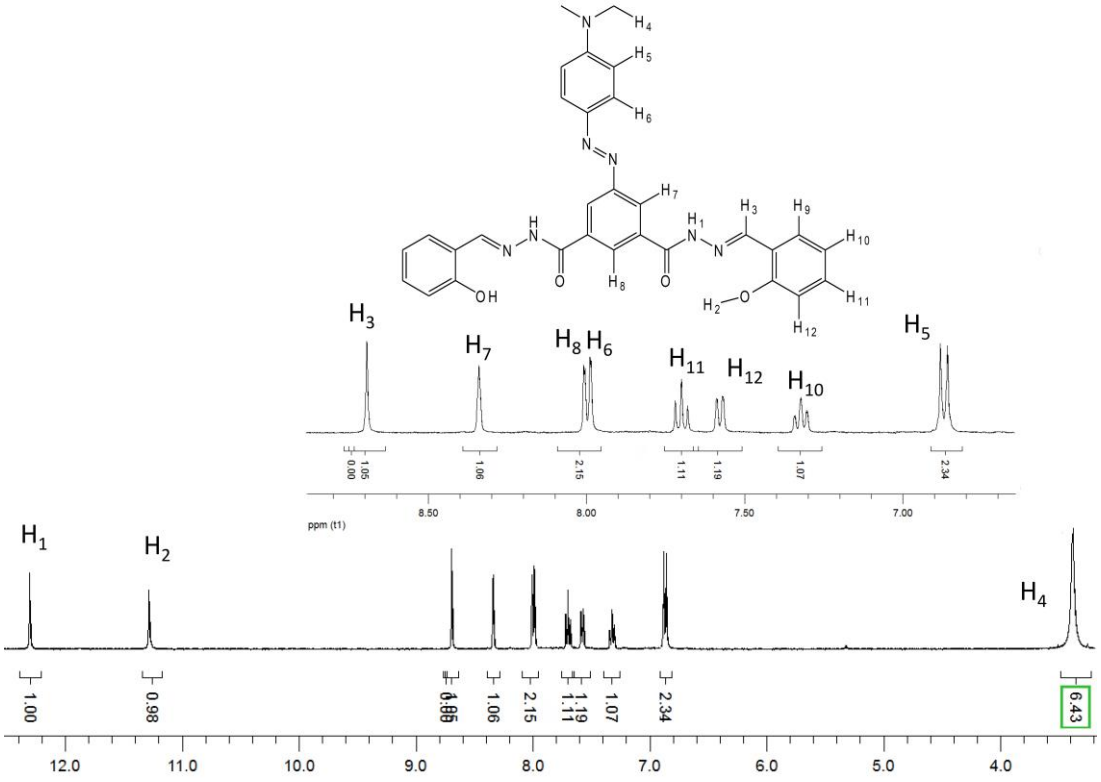
11. Figure S11 ^{1}H-NMR spectra of **DYN3**



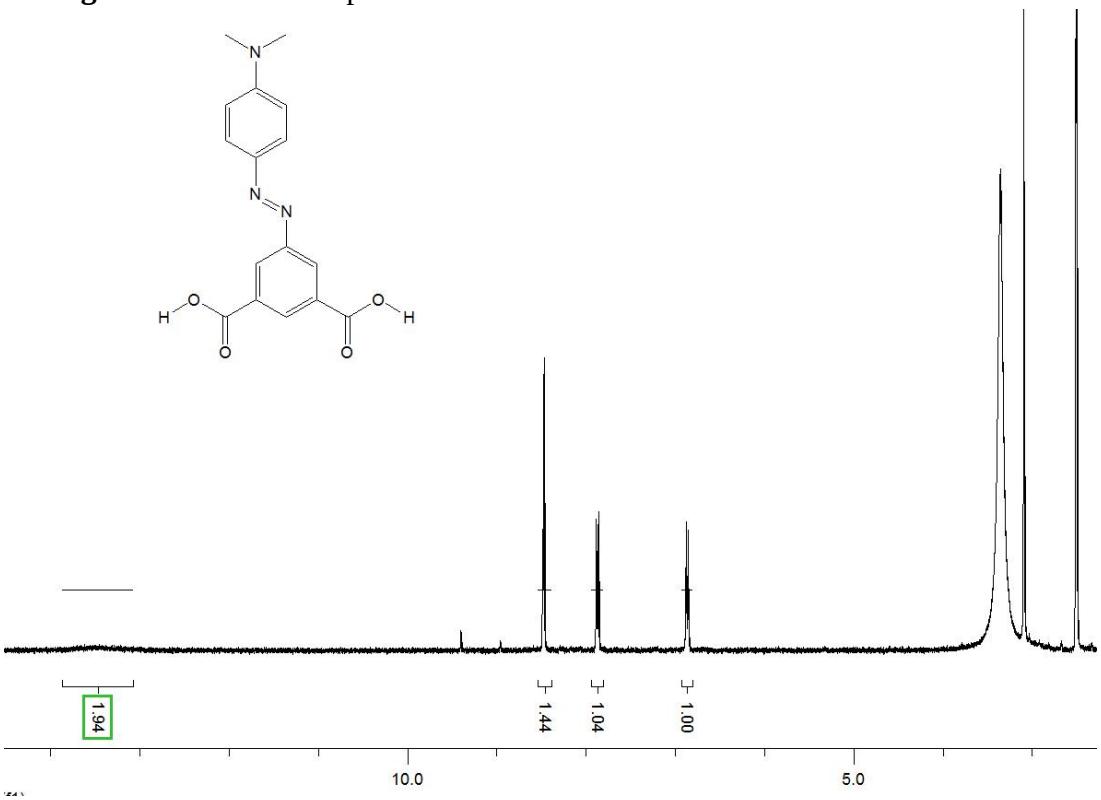
12. Figure S12 ^{1}H-NMR spectra of **DYN2**



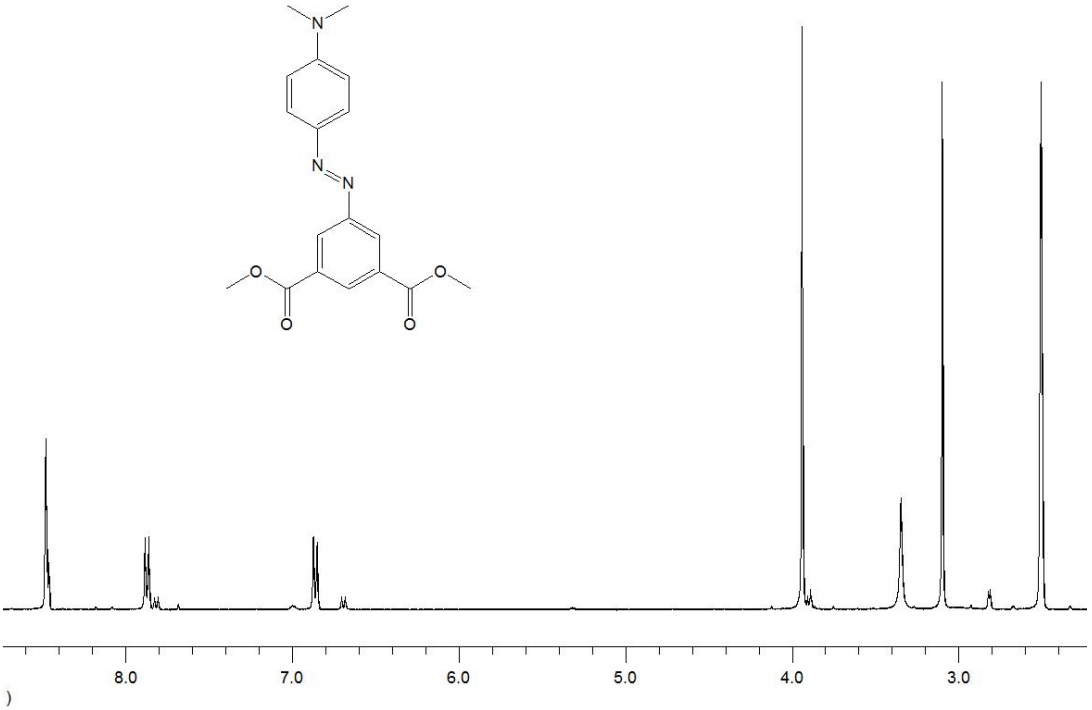
13. Figure S13 ^{1}H-NMR spectra of **DYN4**



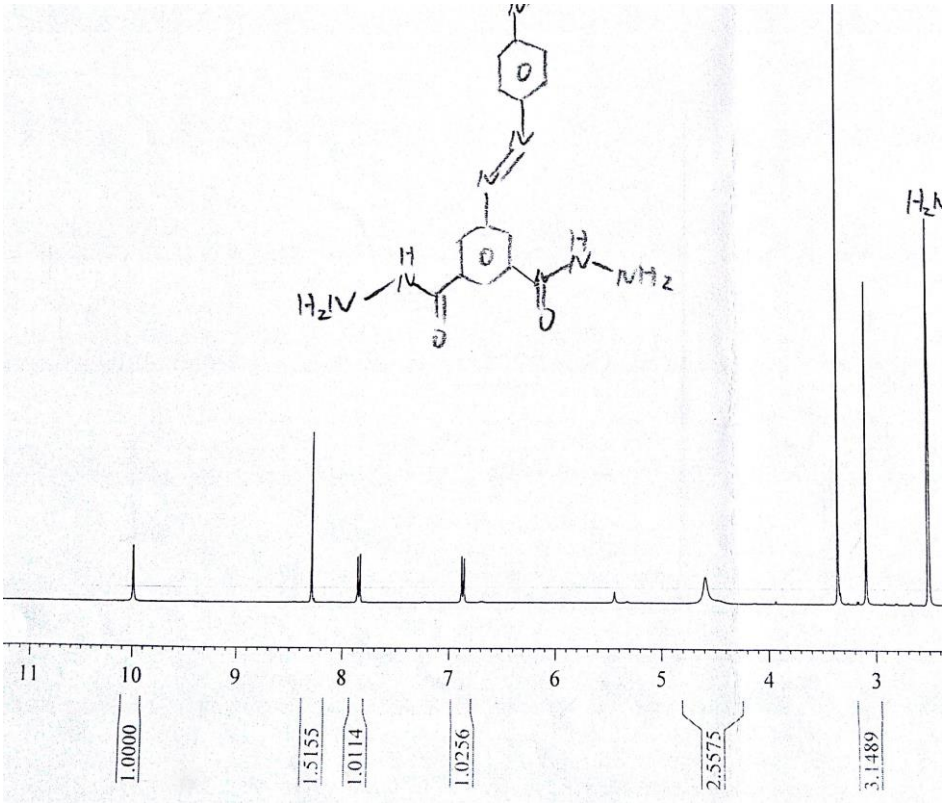
14. Figure S14 ^{1}H-NMR spectra of **1**



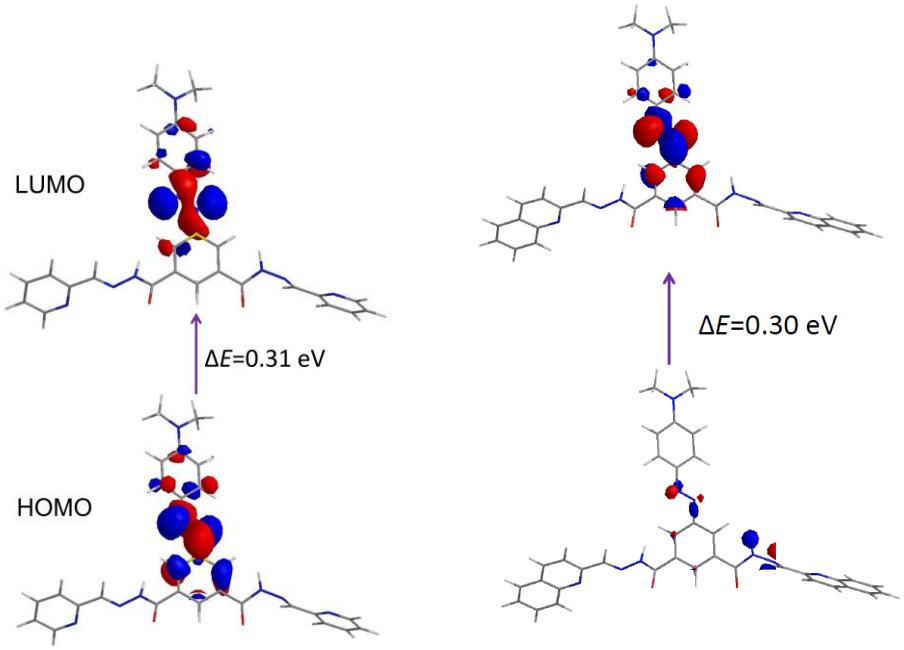
15. Figure S15 ^{1}H-NMR spectra of **2**



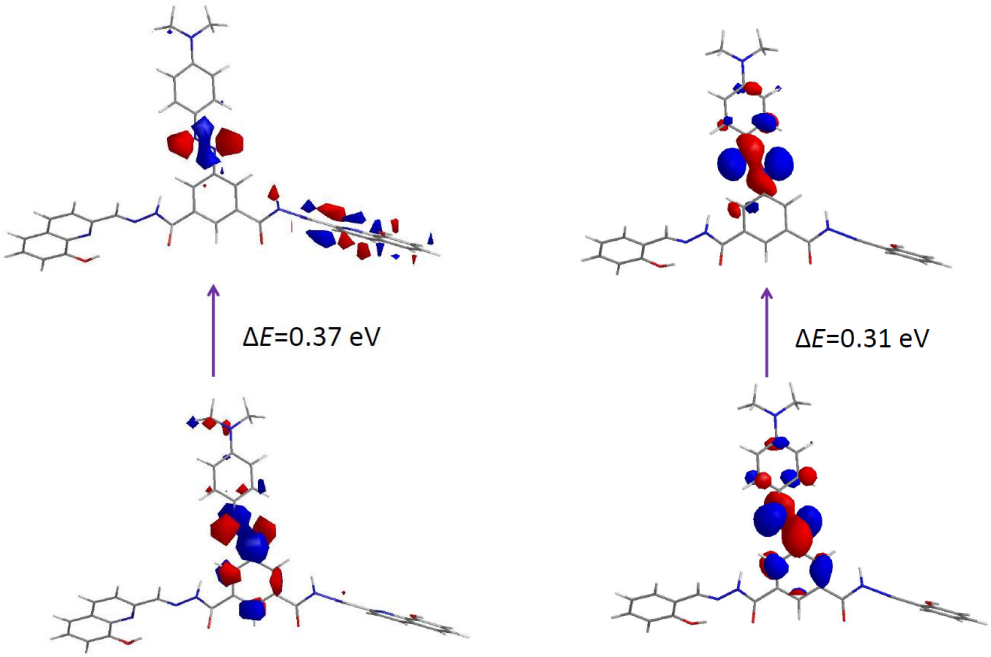
16. Figure S16 ^{1}H-NMR spectra of **3**



17. Figure S17 Contour plots of the HOMO and LUMO for **DYN1-4**

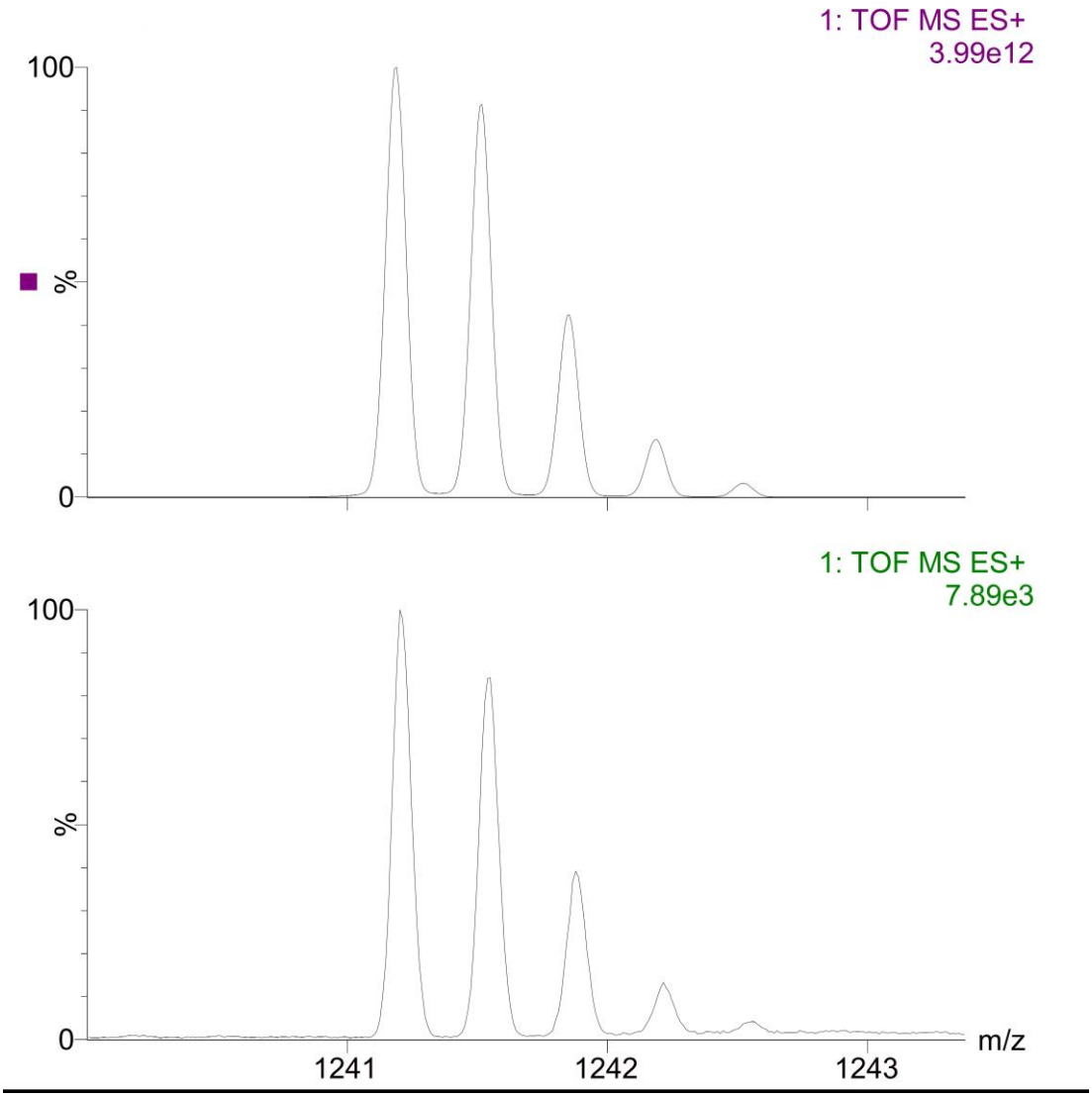


DYN1 **DYN2**



DYN3 **DYN4**

18. Figure S18 ESI-TOF spectra of **DYN1**+Cr^{3+}**.** Comparison of the experimental peak (bottom) with the simulation results obtained on the basis of natural isotopic abundances (top).



19. Figure S19 ICP-AES spectra of sewage sample (bottom). Standard working curve (top).