Supporting Information

Asymmetrically substituted triazenes as poor electron donor ligands in the precursor chemistry of iron(II) for iron-based metallic and intermetallic nanocrystals

Khaled Soussi,[a] Shashank Mishra,[*a] Erwann Jeanneau,[b] Jean-Marc Millet,[a] Stéphane Daniele*[a]

[a]Université Lyon 1, CNRS, UMR 5256, IRCELYON, Institut de recherches sur la catalyse et l'environnement de Lyon, 2 avenue Albert Einstein, F-69626 Villeurbanne, France.

[b]Université Lyon 1, Centre de Diffractométrie Henri Longchambon, 5 rue de La Doua, 69100 Villeurbanne, France.

Fax: 33-472445399; Tel: 33 472445322

shashank.mishra@ircelyon.univ-lyon1.fr (SM)

stephane.daniele@ircelyon.univ-lyon1.fr (SD)

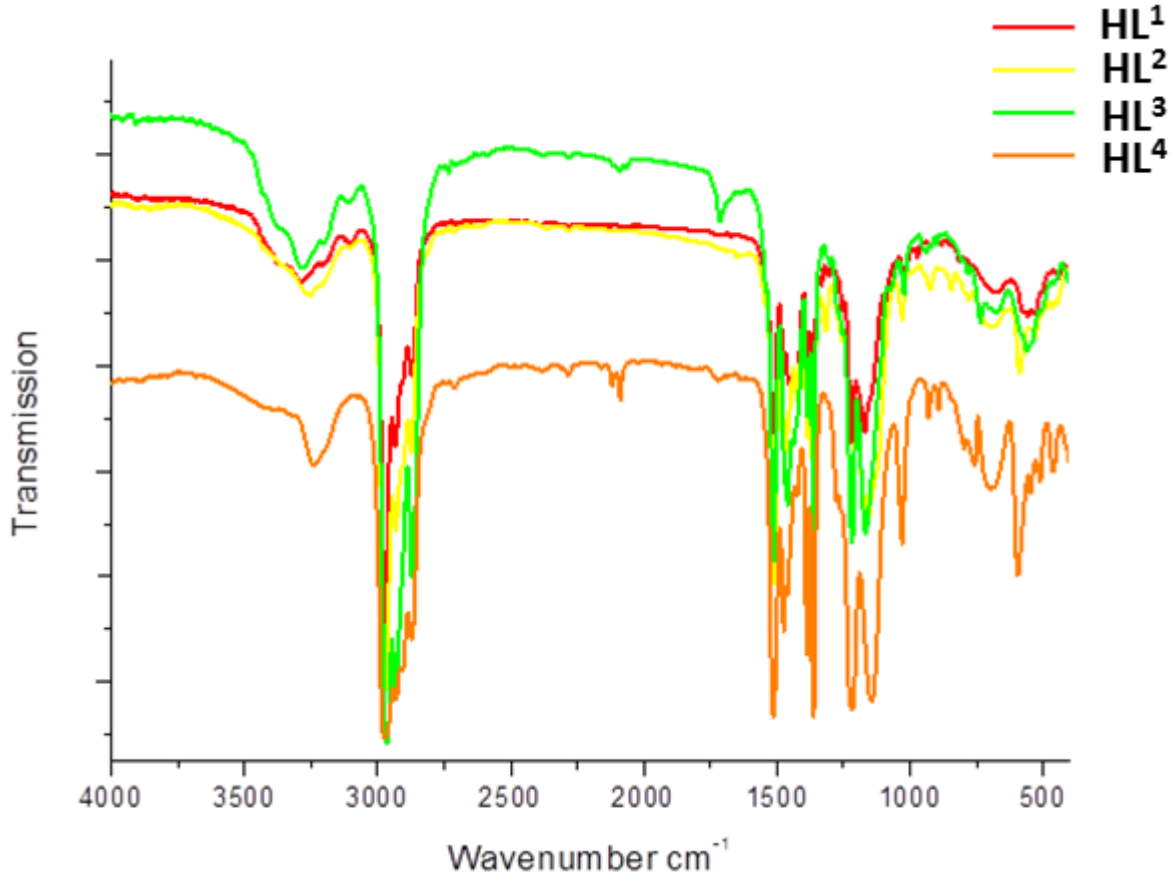

Figure S1: FT-IR spectra of the new ligands **HL^1-HL^4**.

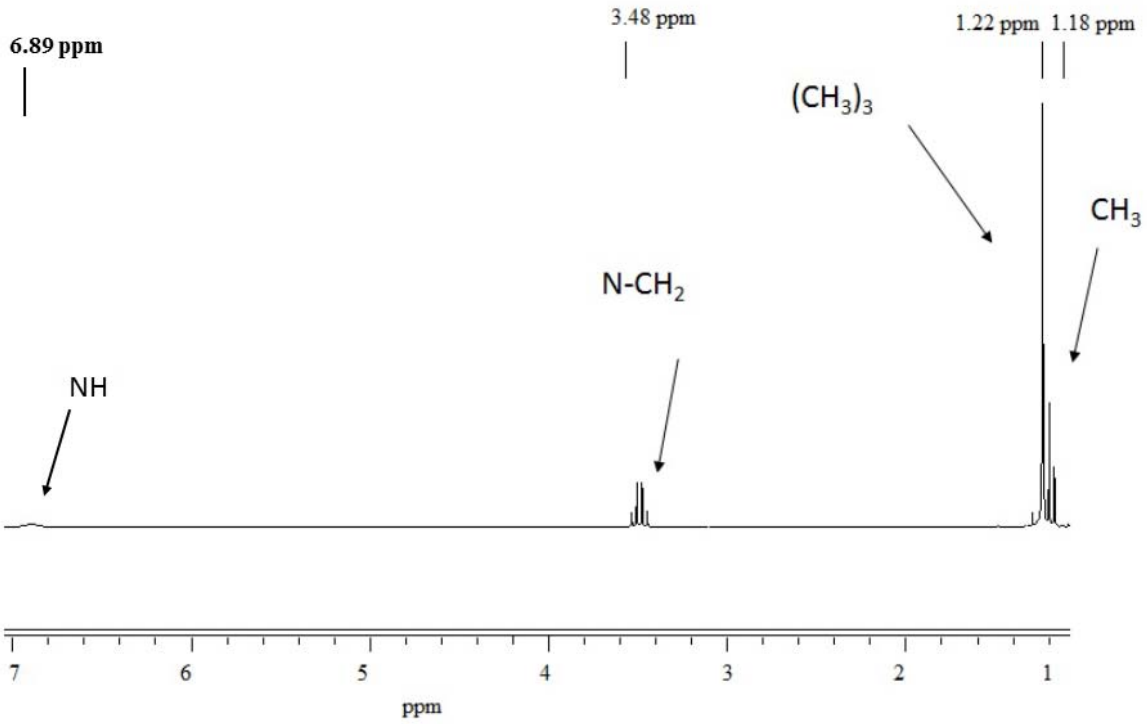

Figure S2: ^{1}H NMR spectrum of the ligand **HL^{1}**.

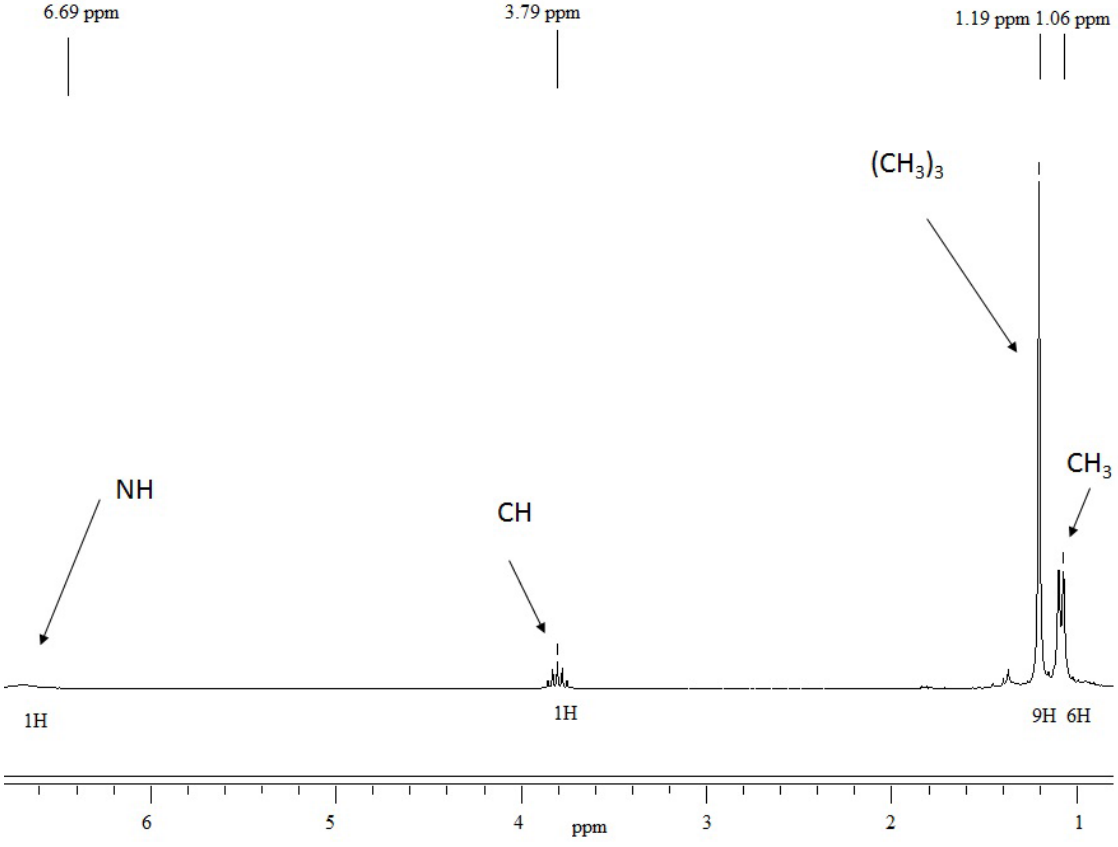

Figure S3: ^{1}H NMR spectrum of the ligand **HL^{2}**.

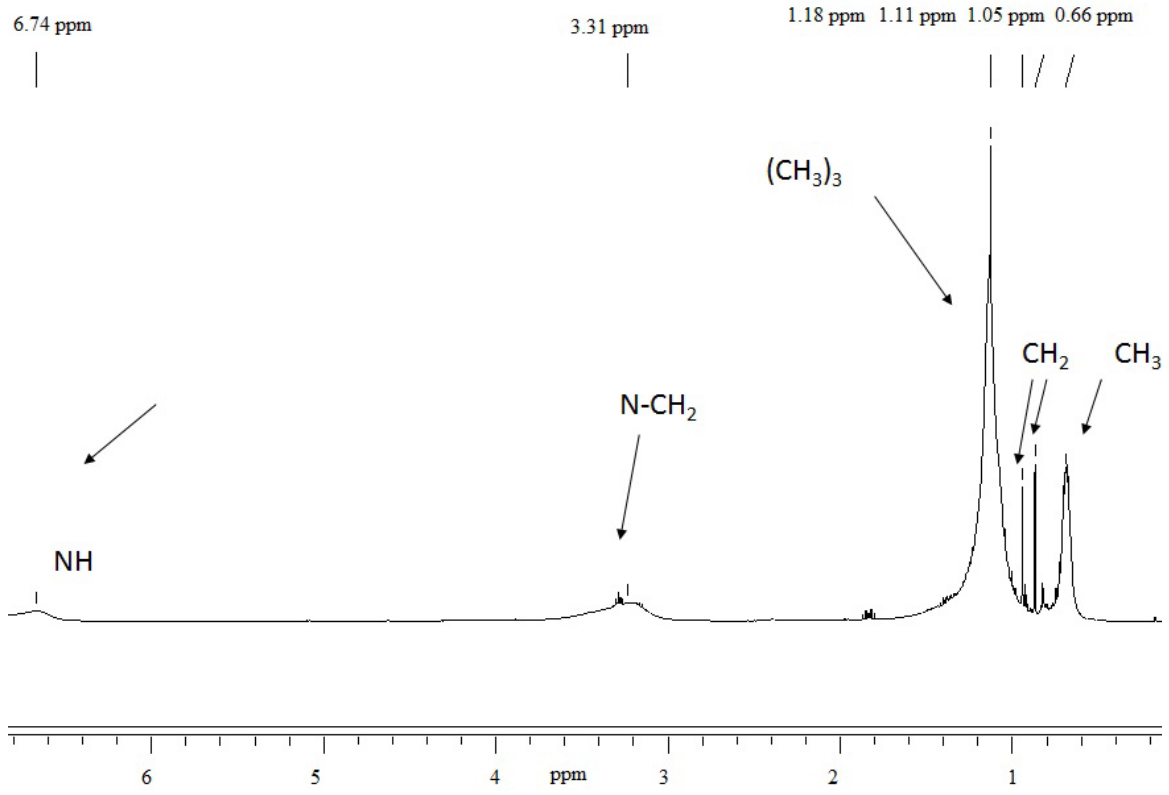

Figure S4: ^{1}H NMR spectrum of the ligand **HL^{3}**.

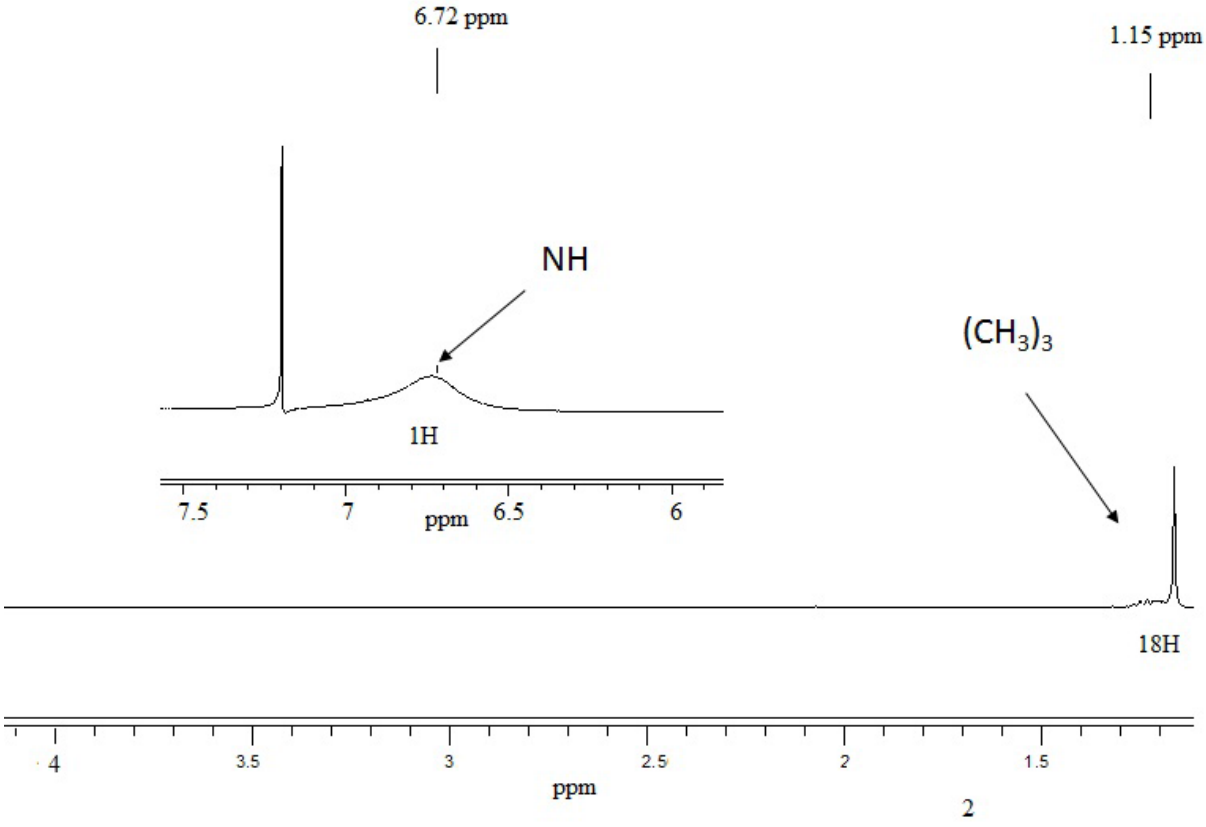

Figure S5: ^{1}H NMR spectrum of the ligand **HL^{4}**.

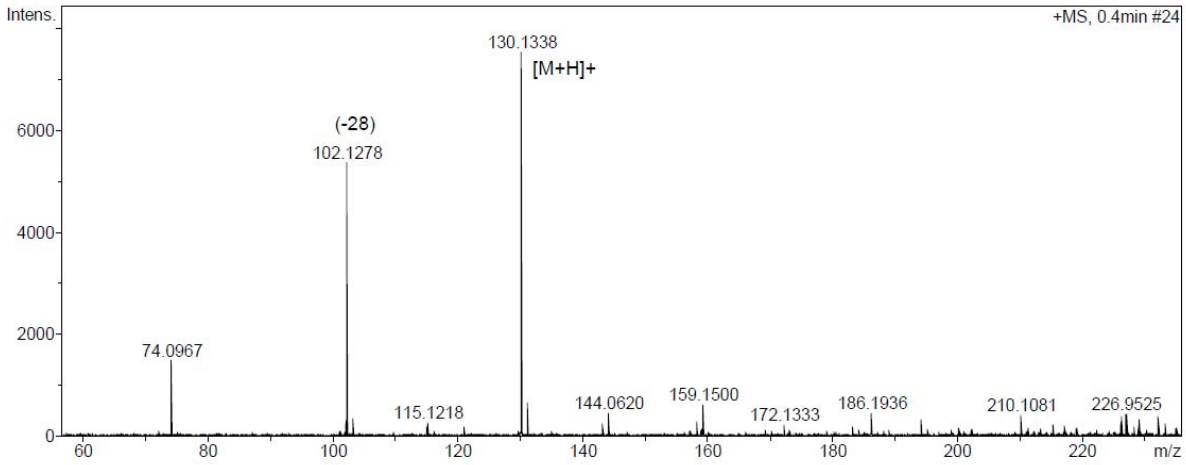

Figure S6: Mass Spectrum of **HL[1]**.

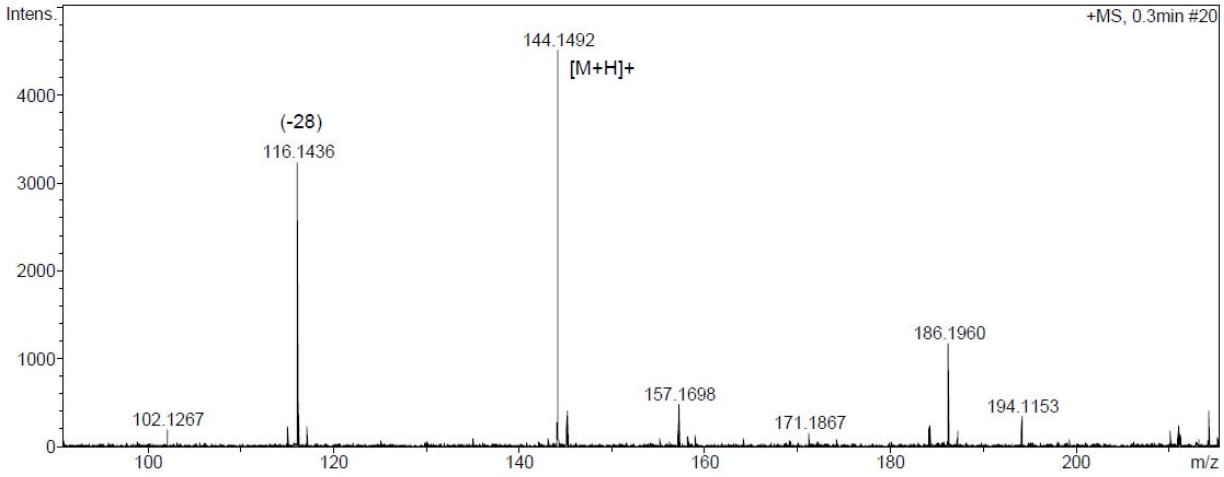

Figure S7: Mass Spectrum of **HL[2]**.

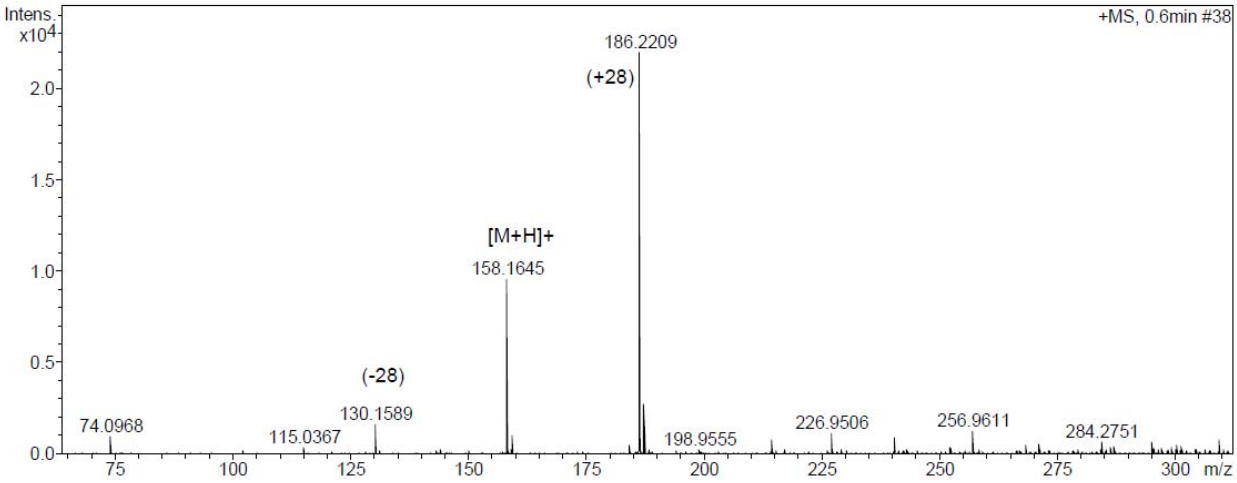

Figure S8: Mass Spectrum of **HL[3]**.

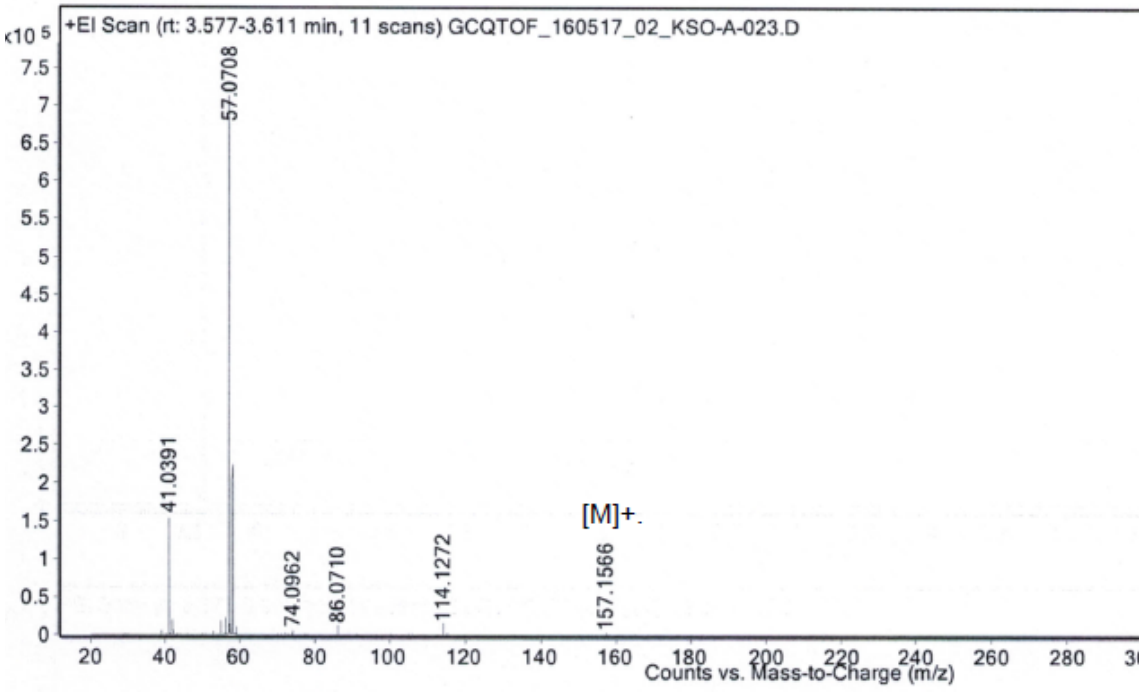

Figure S9: Mass Spectrum of **HL[4]**.

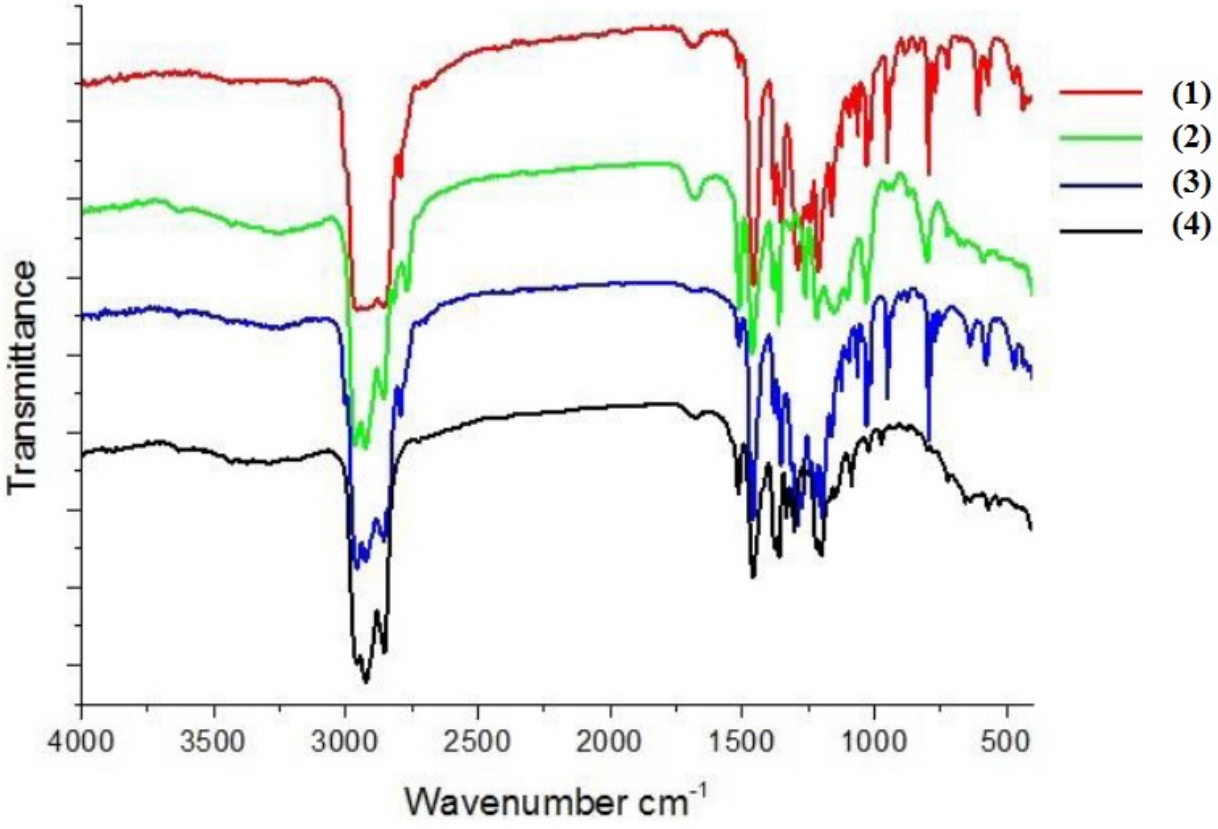

Figure S10: FT-IR spectra of the new Fe(II) complexes **1**-**4**.

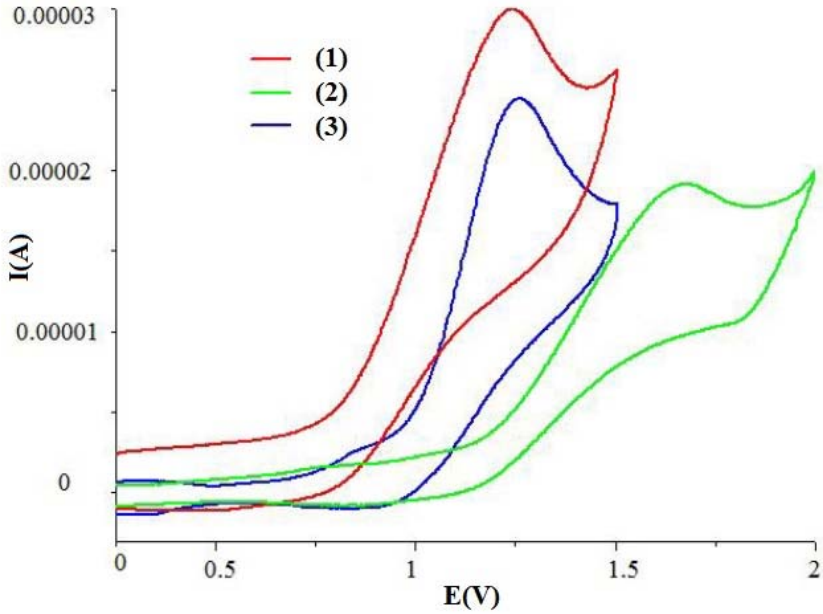

Figure S11. Voltammogram of the new Fe(II) complexes (**1**)-(**3**).

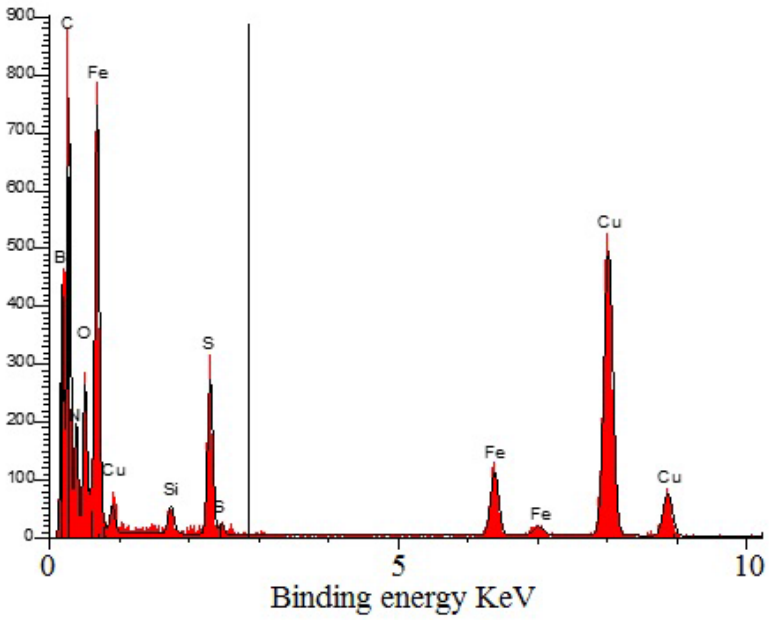

Figure S12. EDX analysis on iron nanoparticles prepared from solution reduction in toluene. The presence of N and S are due to the use of the ionic liquid as medium while Cu and C impurities come from the grid.

Table S1: % atomic concentration of species present on the least oxidized part A and in the most oxidized one B in the sample of $Al_{13}Fe_4$ nanoparticles.

% atomic concentration	Fe	Al	O	Si	Cl
A	11.3	54.16	32.06	1.4	1.08
B	8.16	3.25	80.25	-	-