Article

Microwave-Assisted Solvothermal Synthesis of Fe_3O_4/CeO_2 Nanocomposites and Their Catalytic Activity in the Imine Formation from Benzyl Alcohol and Aniline

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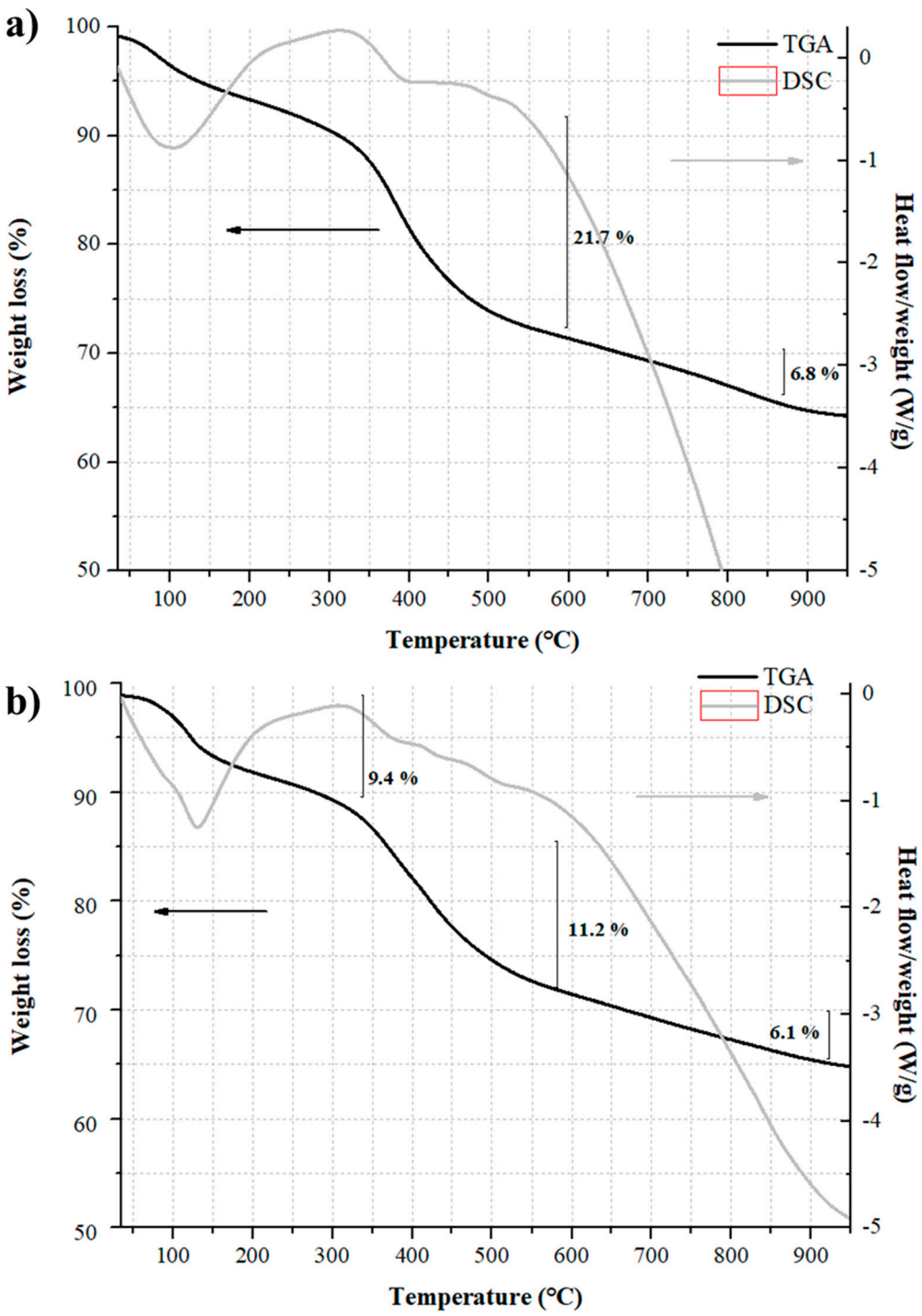


Figure S1. TGA (black) and DSC (grey) curves for a) $0.6CeO_2$ and b) $1.5CeO_2$.

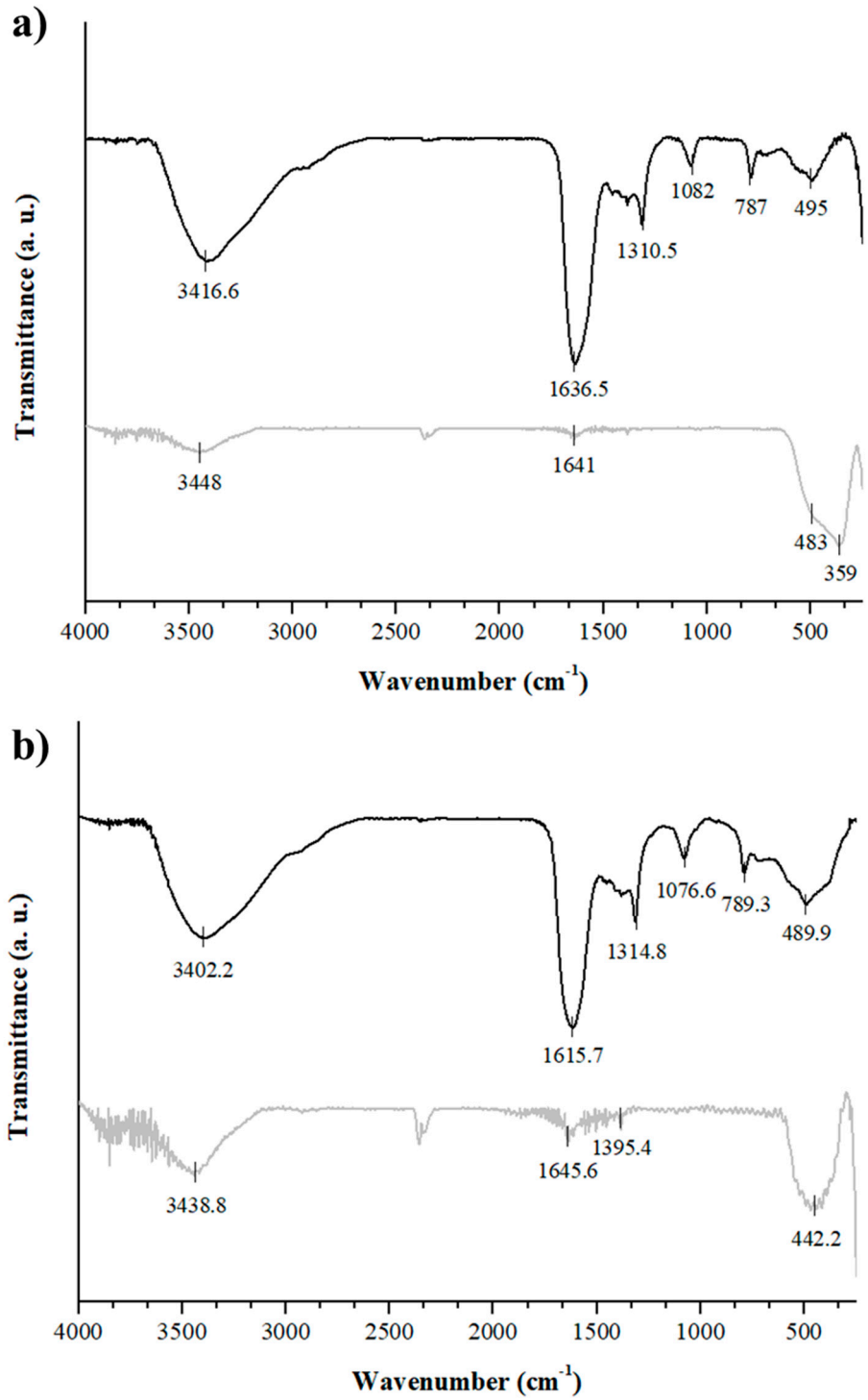


Figure S2. IR spectra of a) $0.6CeO_2$ and b) $1.5CeO_2$ as prepared (black) and after calcination at 1000°C (grey).

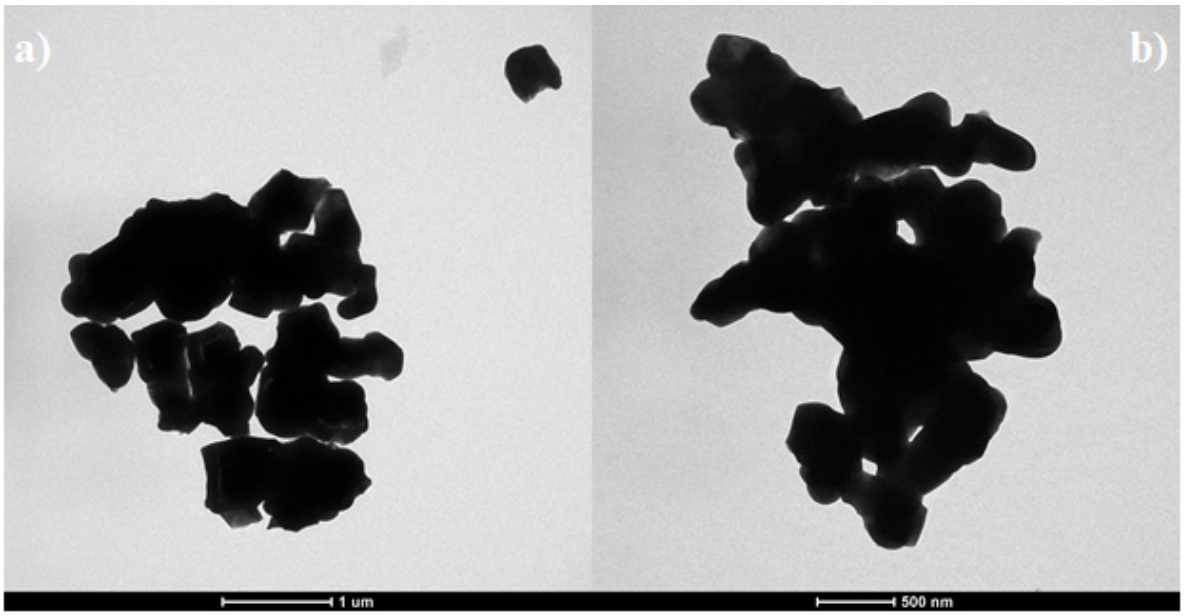
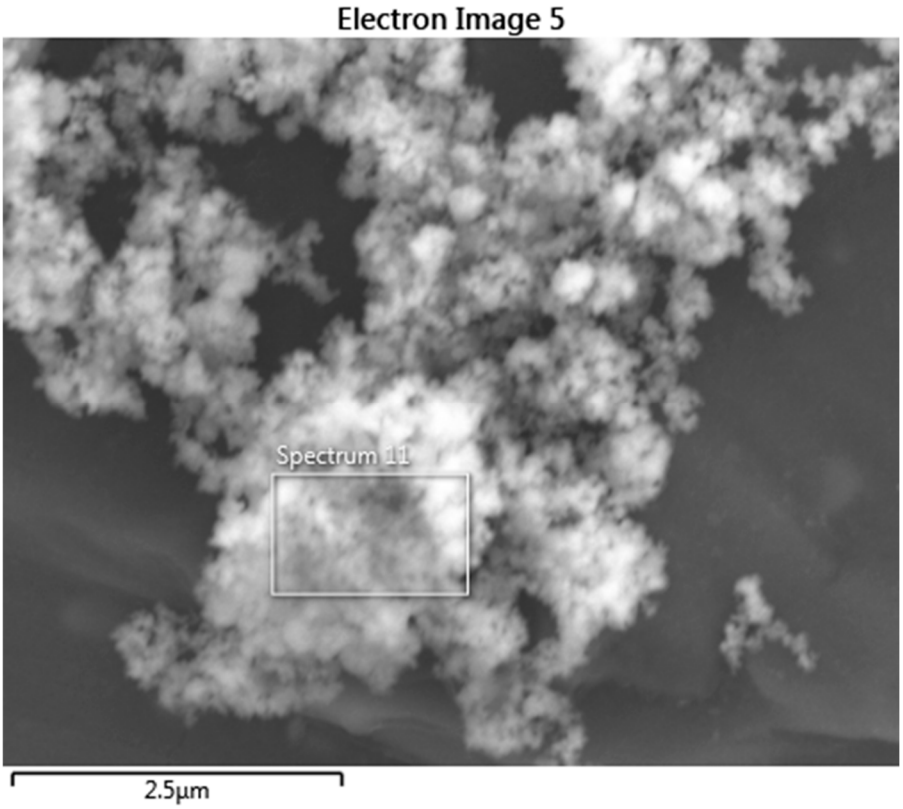


Figure S3. TEM images of a) $Fe_3O_4/0.6CeO_2$, b) $Fe_3O_4/1.5CeO_2$, both after calcination at 1000°C.



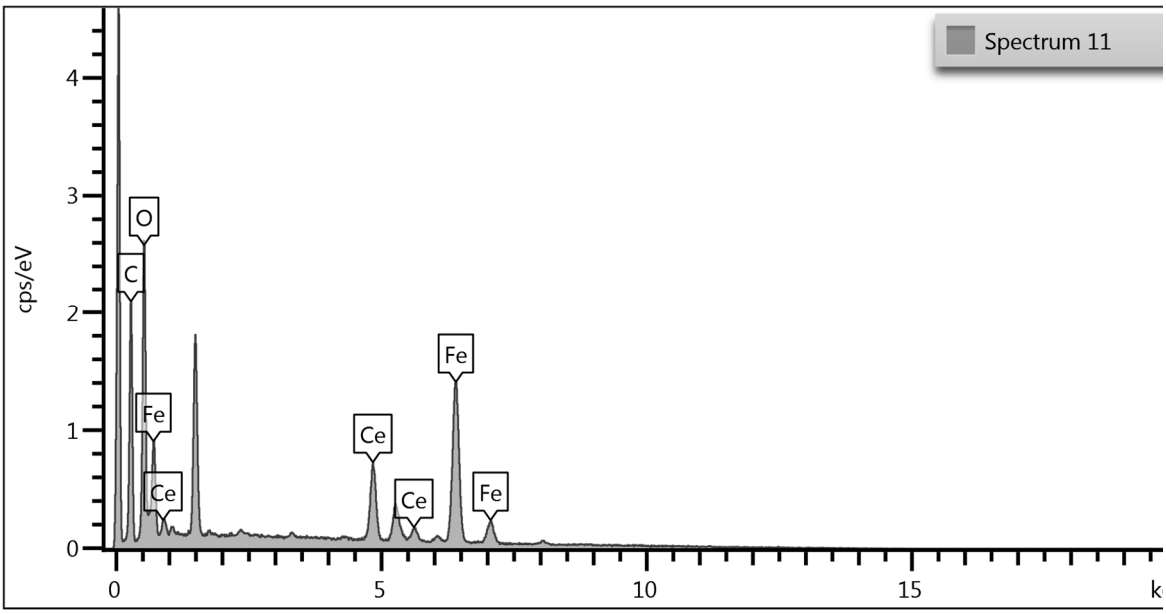
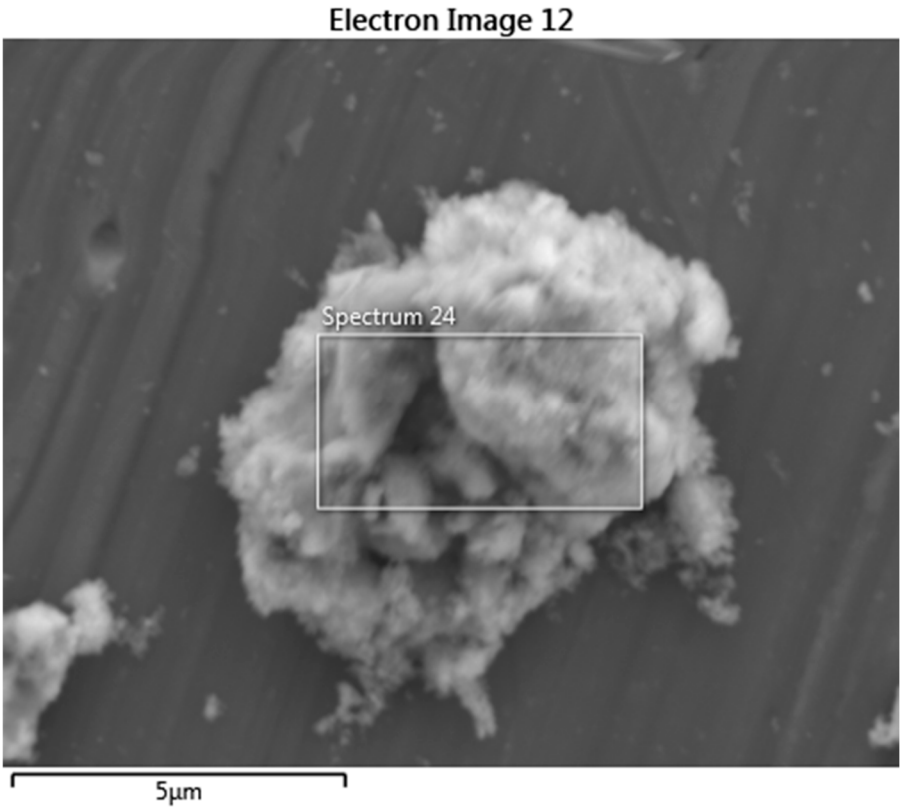


Figure S4. EDS analysis of $Fe_3O_4/1.5CeO_2$ after calcination at 550°C. The peak without label is due to Al impurity.



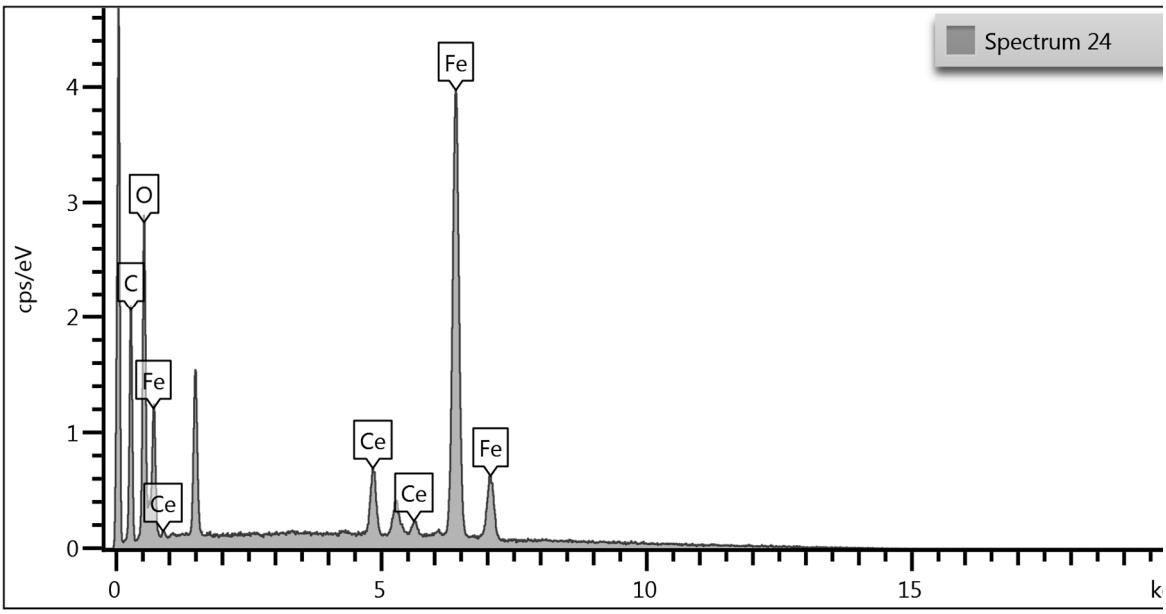
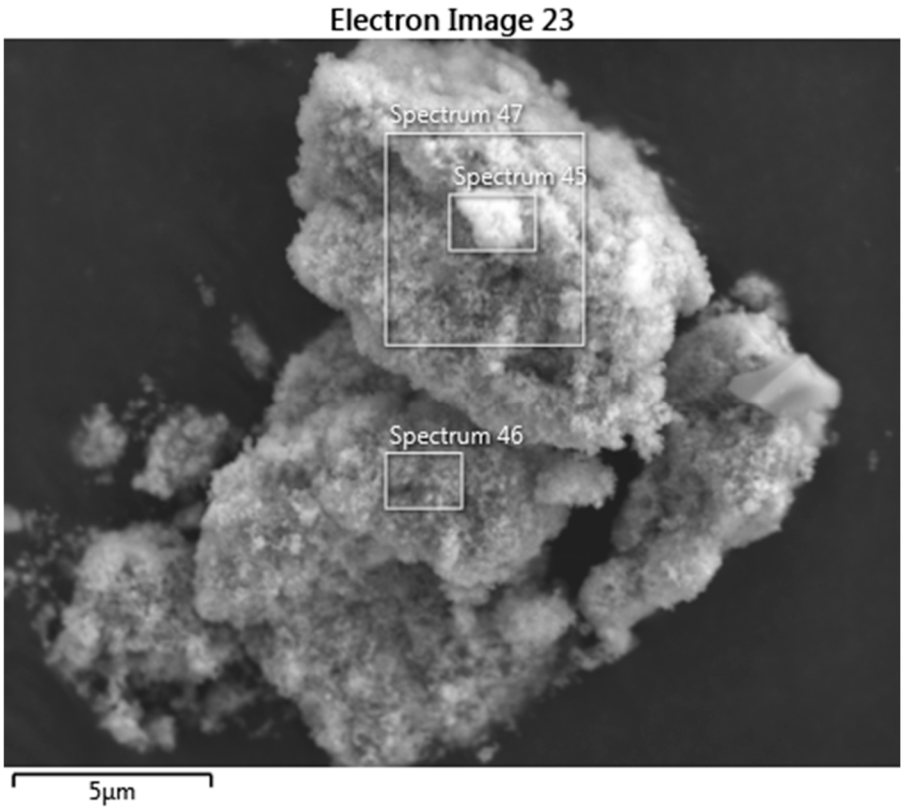


Figure S5. EDS analysis of Fe_3O_4:CITR/1.5CeO_2 after calcination at 550°C. The peak without label is due to Al impurity.



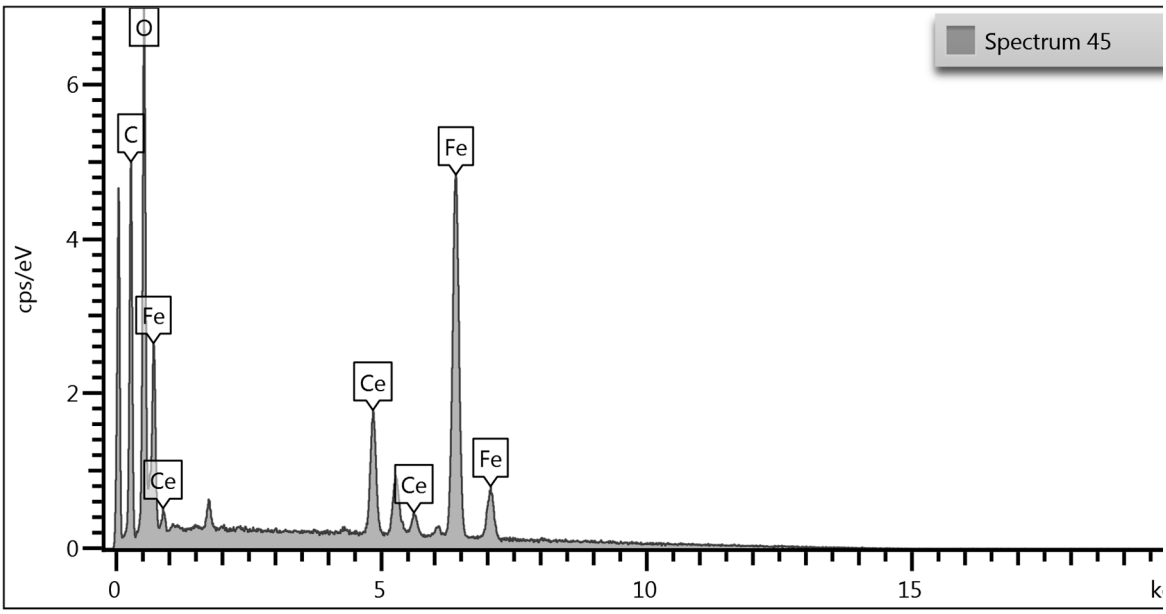
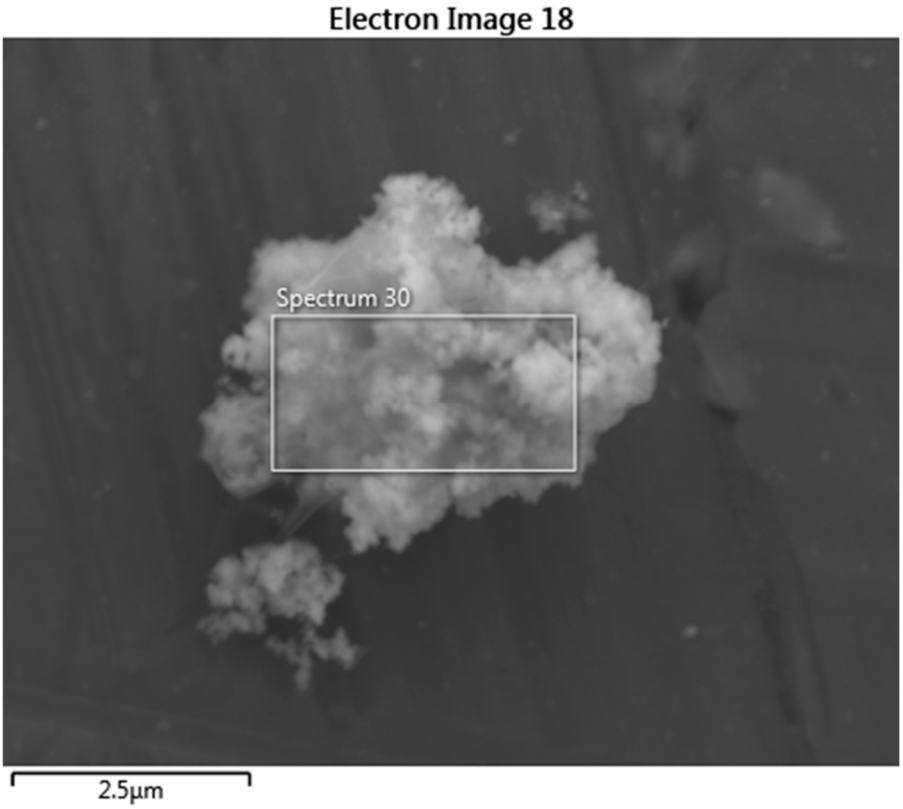


Figure S6. EDS analysis of Fe_3O_4:PVP/1.5CeO_2 after calcination at 550°C.



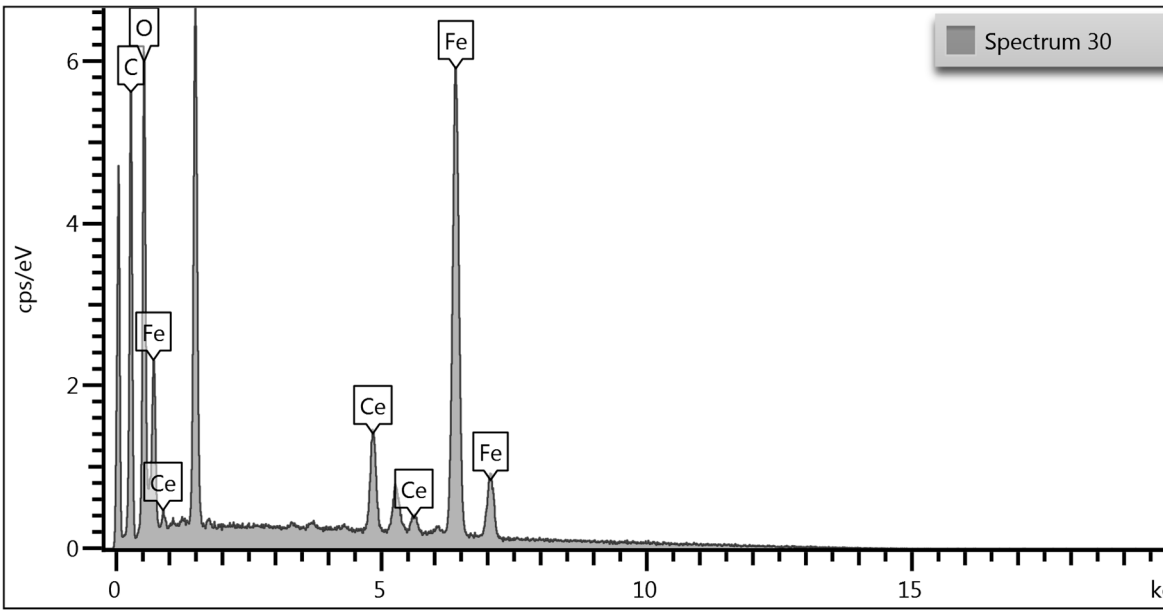


Figure S7. EDS analysis of Fe_3O_4:OA/1.5CeO_2 after calcination at 550°C. The peak without label is due to Al impurity.

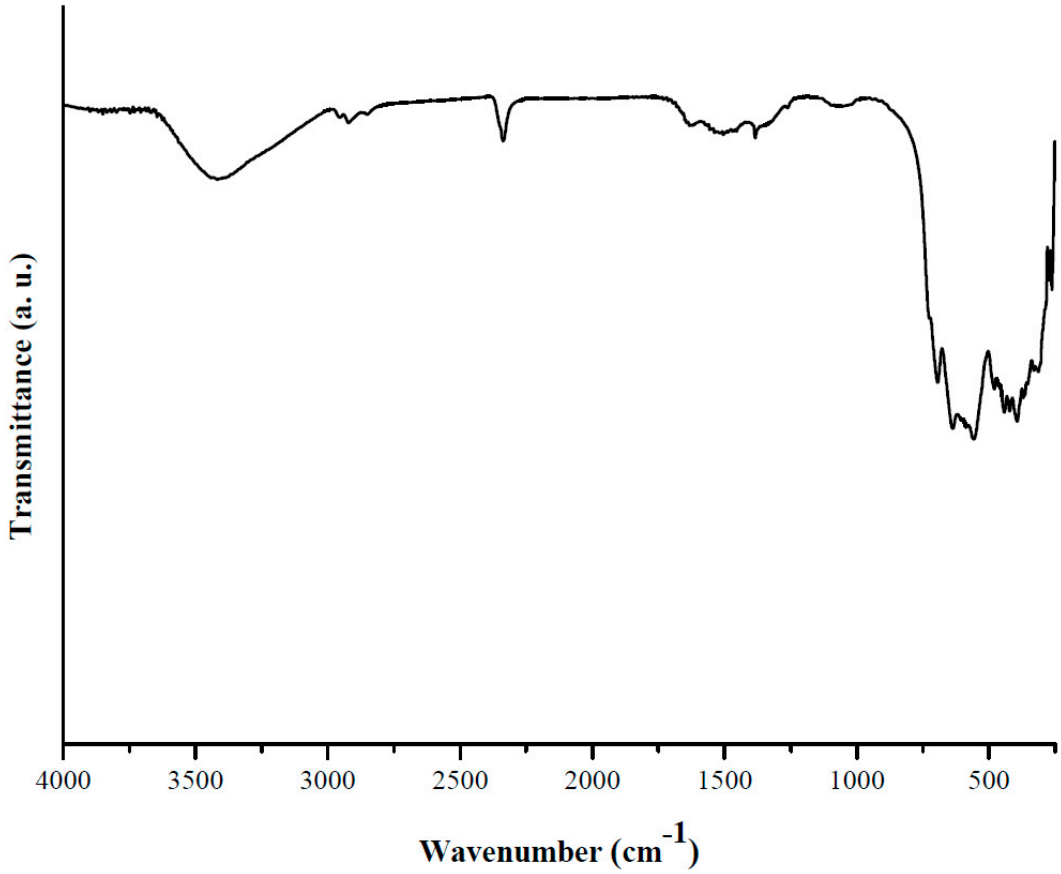


Figure S8. FT-IR spectrum of Fe_3O_4/1.5CeO_2 after calcination for 3 h at 400 °C.

Table S1. References reporting XRD patterns of pure listed compounds.

Compound (No: code number)	Reference

Villiaumite (NaF) (No: 01-070-2508)	Srinivasa, R.B., Sanyal, S.P.,1990. Structural and elastic properties of sodium halides at high pressure, Phys. Rev. B: Condens. Matter 42, 1810-1816.
Cerianite (CeO_2) (No: 00-043-1002)	Grier, D., McCarthy, G., North Dakota StateUniversity, Fargo, North Dakota, USA., ICDD Grant-in-Aid (1991)
Magnetite (No: 01-076-1849)	Claassen, A.A.,1926. The scattering power of oxygen and iron for X-rays, Proc. Phys. Soc. London 38, 482-487
Iron Oxalate Hydrate (No: 00-022-0635)	Deyrieux, R.; Peneloux, A. Contribution à l'étude des Oxalates de Certains Métaux Bivalents: Structure Cristalline des Deux Formes Allotropiques de l'oxalate Ferreux Dihydraté Bull. Soc. Chim. France 1969, 8, 2675– 2681
Cerium Oxalate Hydrate (No: 00-001-0214)	J. D. Hanawalt, H. W. Rinn, and L. K. Frevel, 1938, Chemical Analysis by X-Ray Diffraction, Anal.Chem. 10, 457-512.

Table S2. Imine synthesis from benzyl alcohol and aniline over various catalysts. [a] Formation rate per catalyst amount. All values were taken from ref. 37.

Catalyst	**V (mmol h^{-1} g^{-1})[a]**
MnO_2	0.0088
Al_2O_3	0.0046
Y_2O_3	0.003
La_2O_3	0.001
Nb_2O_5	0.001
ZrO_2	0.001
MgO	<0.001
TiO_2	<0.001
Ta_2O_5	<0.001
Fe_2O_3	<0.001
CaO	<0.001
ZnO	<0.001
SiO_2	<0.001
Fe_2O_3/1.5CeO_2 5th run (this work)	**2.3**