

Supplementary Information

Yerba Mate Tea Extract: a Green Approach for the Synthesis of Silica Supported Iron Nanoparticles for Dye Degradation

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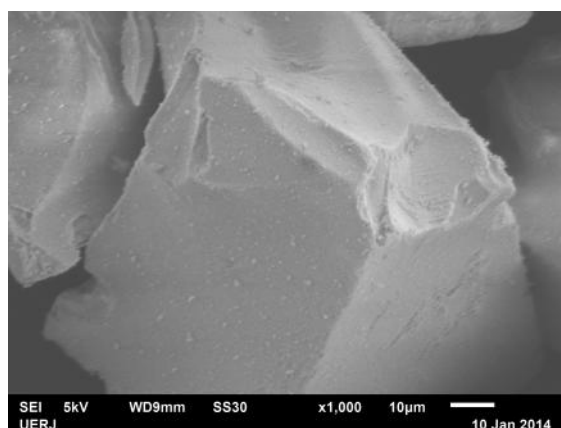


Figure S1. SEM micrograph of silica gel (1,000×).

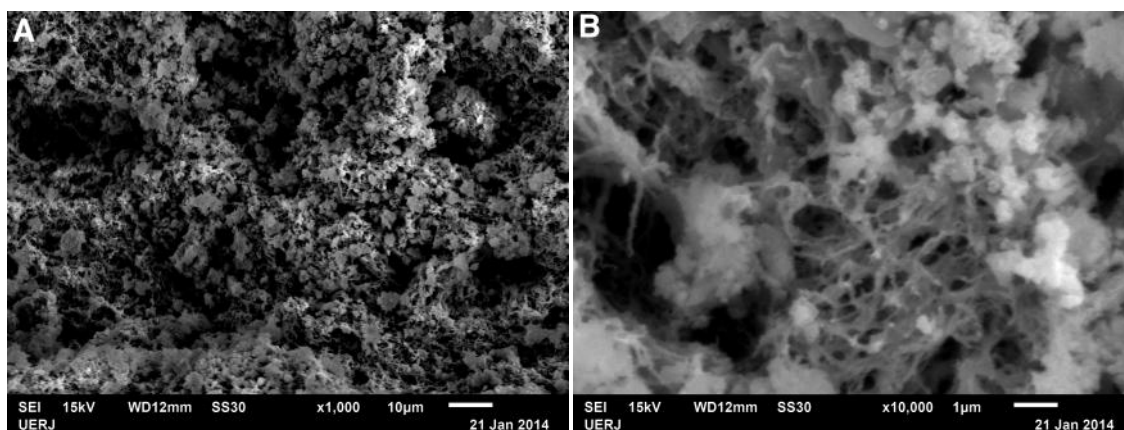


Figure S2. SEM micrographs of free iron(0) nanoparticles: (A) 1,000×; and (B) 10,000×.

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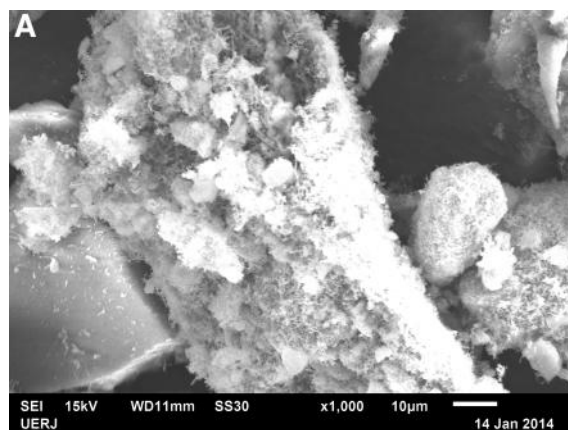


Figure S3. SEM micrograph of the catalysts $^{50\%}\text{Fe}/\text{SiO}_2$ (1,000 \times).

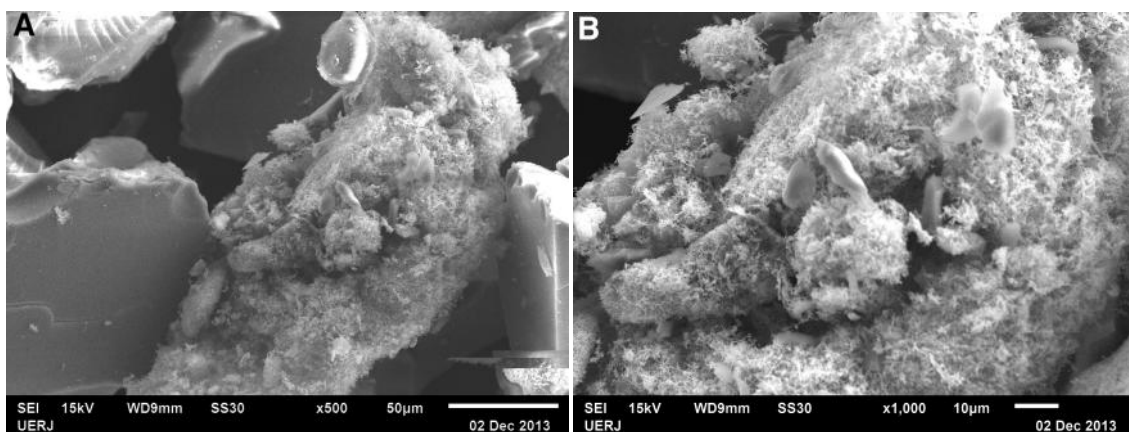


Figure S4. SEM micrographs of the catalyst $^{25\%}\text{Fe}/\text{SiO}_2$: (A) 500 \times ; and (B) 1,000 \times .

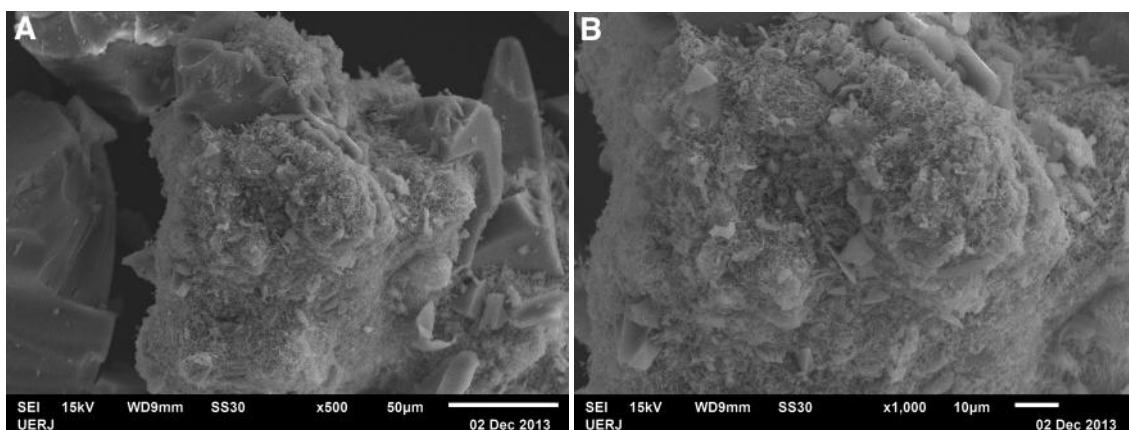


Figure S5. SEM micrographs of the catalyst $^{5\%}\text{Fe}/\text{SiO}_2$: (A) 500 \times ; and (B) 1,000 \times .

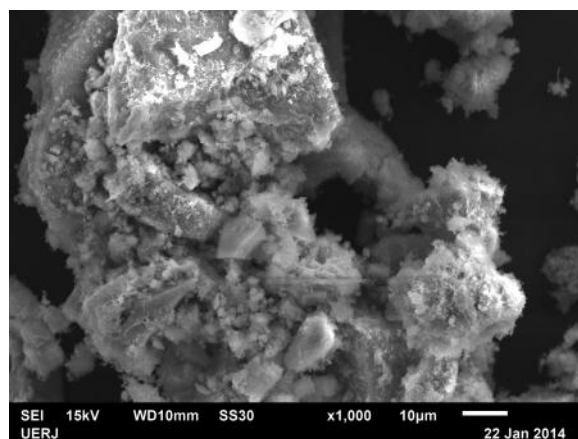


Figure S6. SEM micrograph of the catalysts $^{50}\text{Fe}/\text{SiO}_2$ (1,000 \times) after reaction.

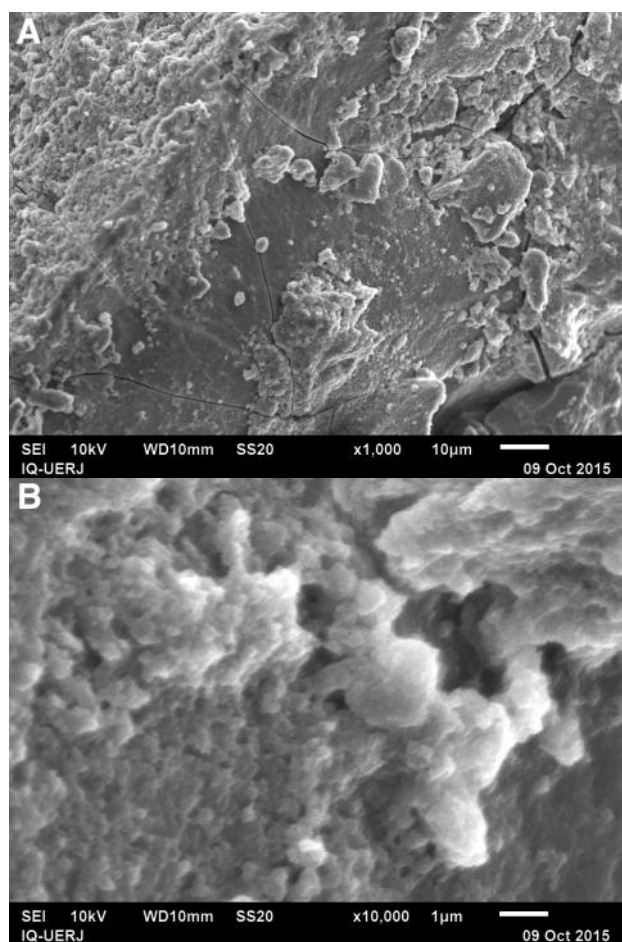


Figure S7. SEM micrographs of free nanoparticles ^{50}Fe : (A) 1,000 \times ; and (B) 10,000 \times .

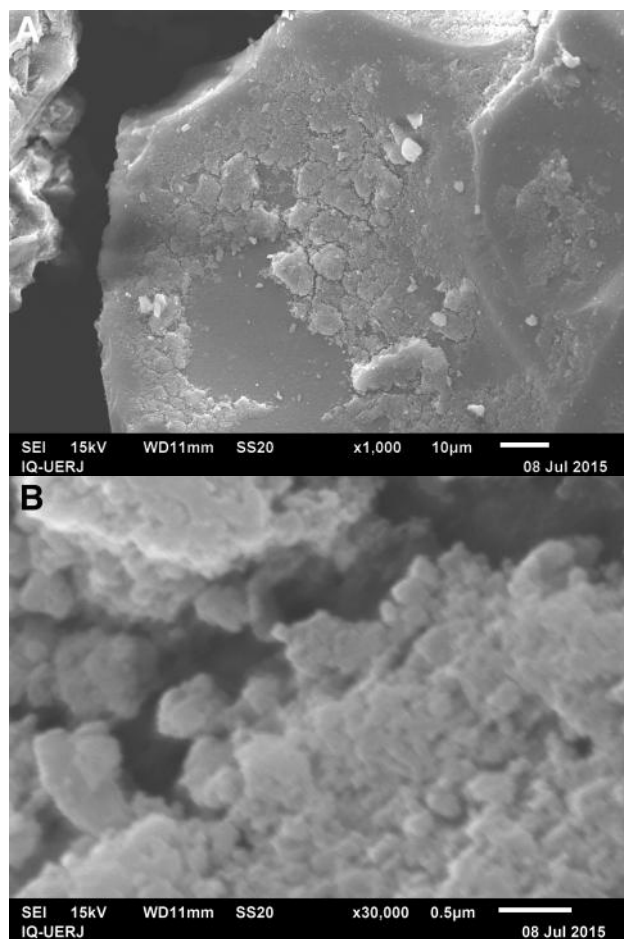


Figure S8. SEM micrographs of $^{YM1}Fe/SiO_2$: (A) 1,000×; and (B) 30,000×.

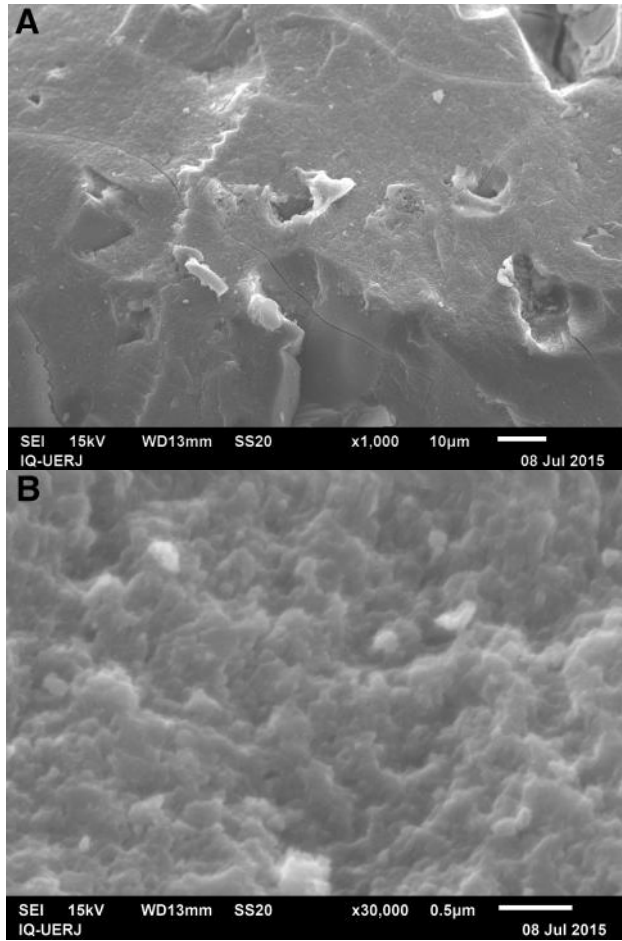


Figure S9. SEM micrographs of $Y^{M2}Fe/SiO_2$: (A) 1,000 \times ; and (B) 30,000 \times .

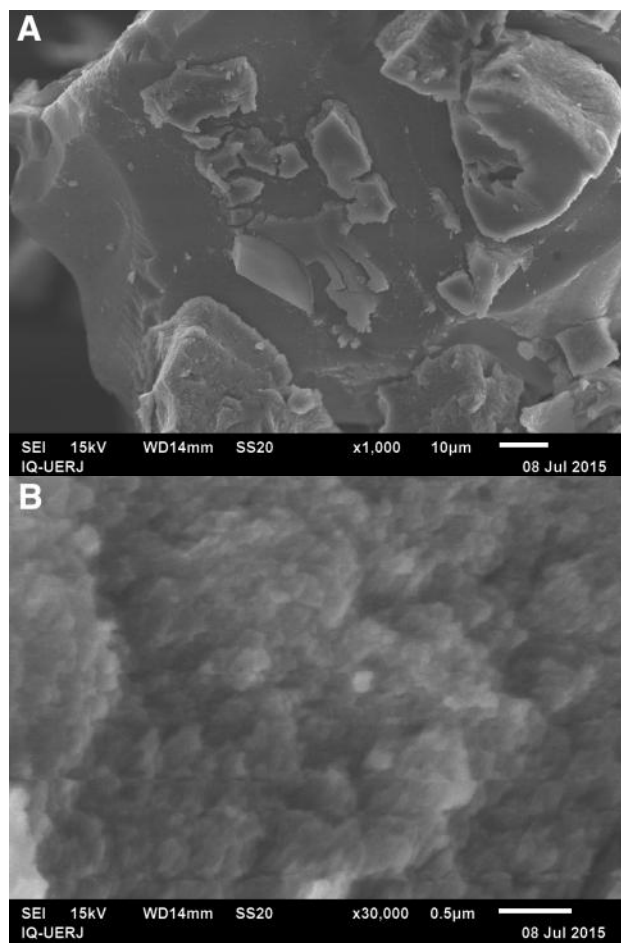


Figure S10. SEM micrographs of $Y^{M3}Fe/SiO_2$: (A) 1,000 \times ; and (B) 30,000 \times .

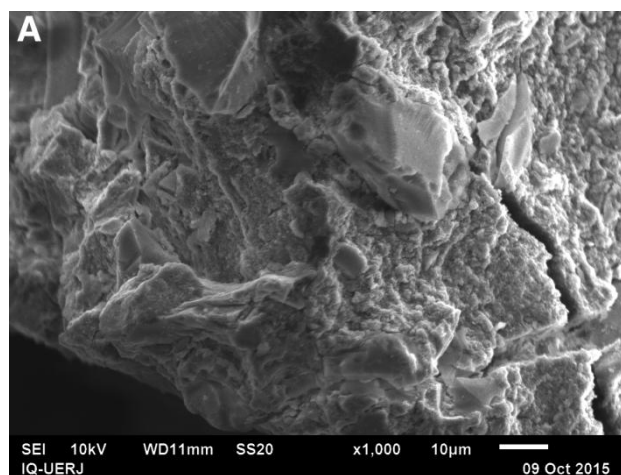


Figure S11. SEM micrographs of $Y^{M4}Fe/SiO_2$ (1,000 \times).

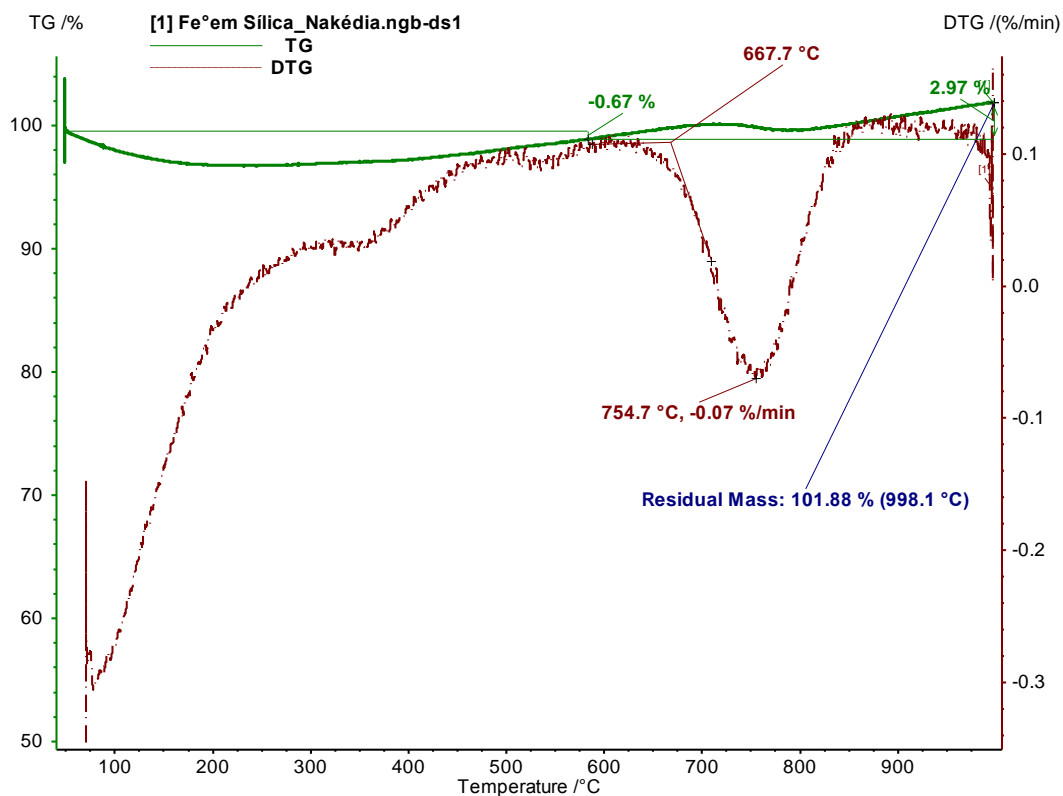


Figure S12. Thermogravimetric analysis of $^{50}\text{Fe}/\text{SiO}_2$. TG: Green curve; DTG: red curve.

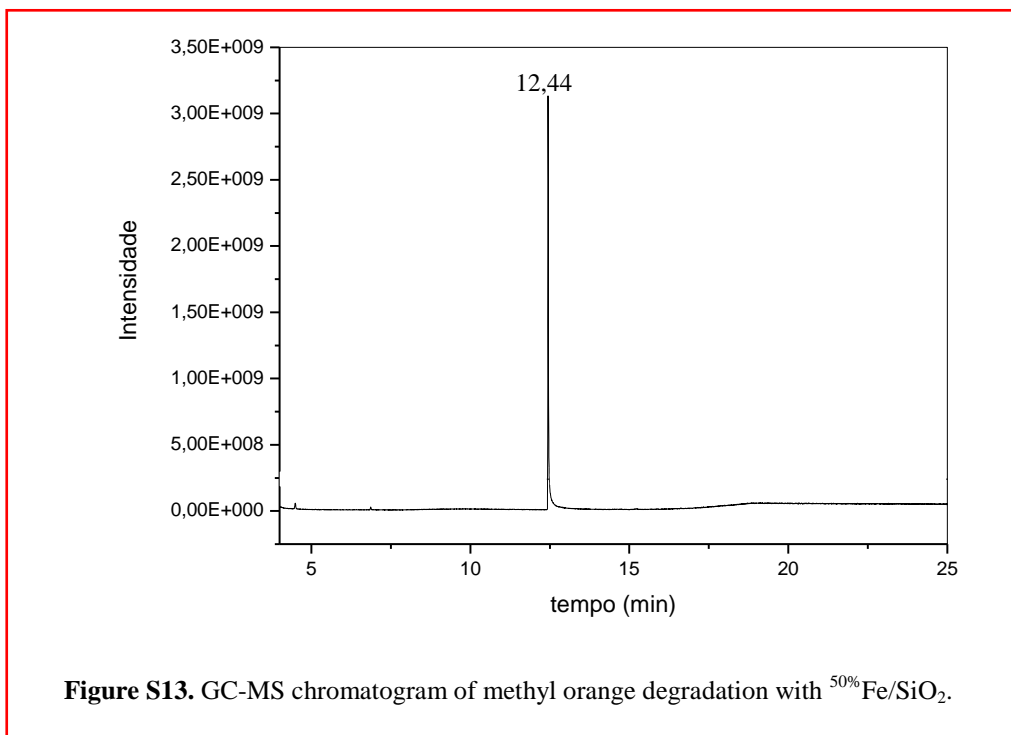


Figure S13. GC-MS chromatogram of methyl orange degradation with $^{50}\text{Fe}/\text{SiO}_2$.

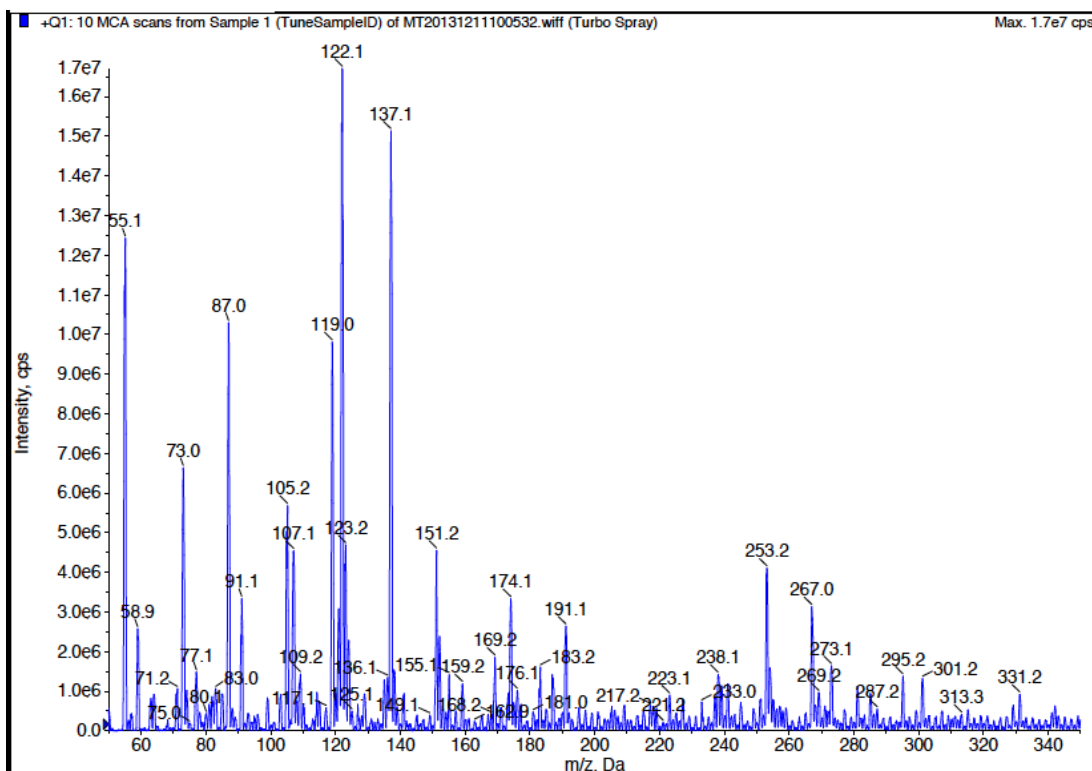


Figure S14. ESI(+)-LC/MS spectrum of methyl orange degradation with $^{50}\text{Fe}/\text{SiO}_2$.

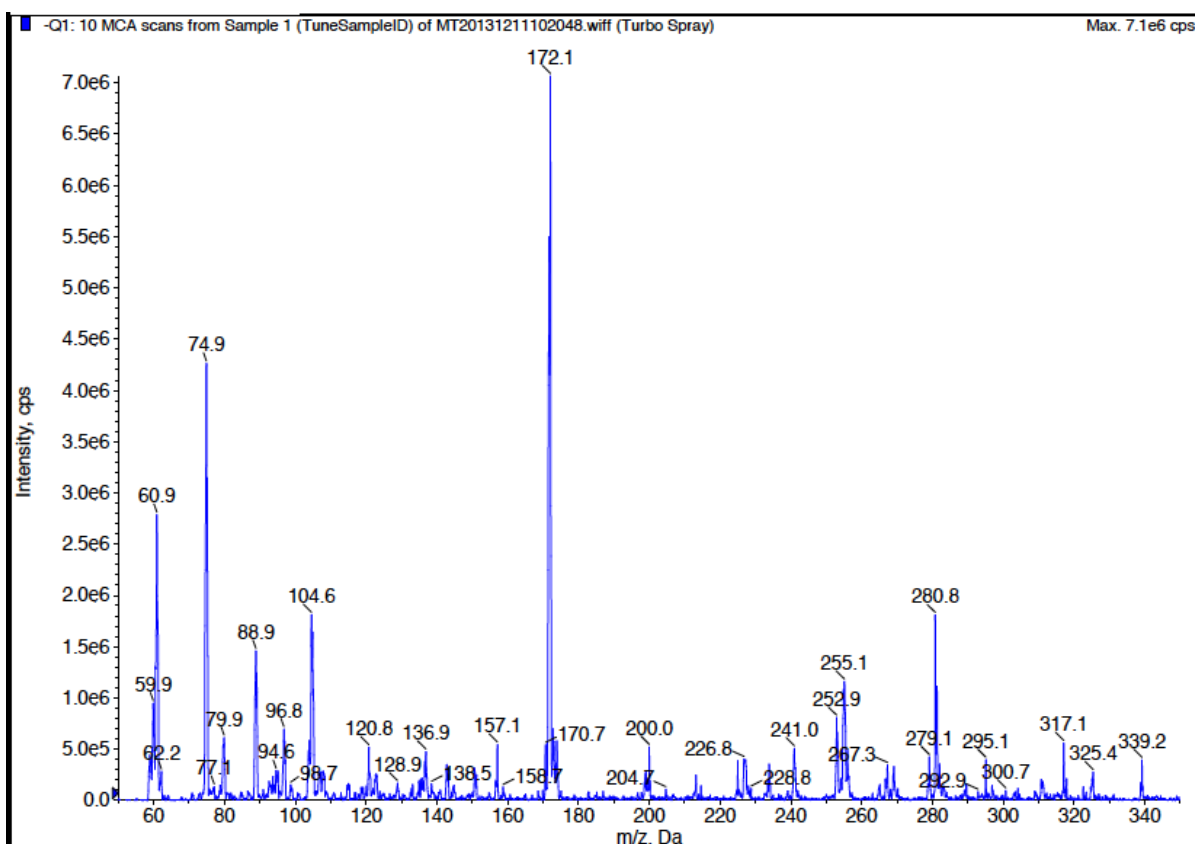


Figure S15. ESI(-)-LC/MS spectrum of methyl orange degradation with $^{50}\text{Fe}/\text{SiO}_2$.