

Magnetic-porous microspheres with synergistic catalytic activity of small-sized gold nanoparticles and titania matrix

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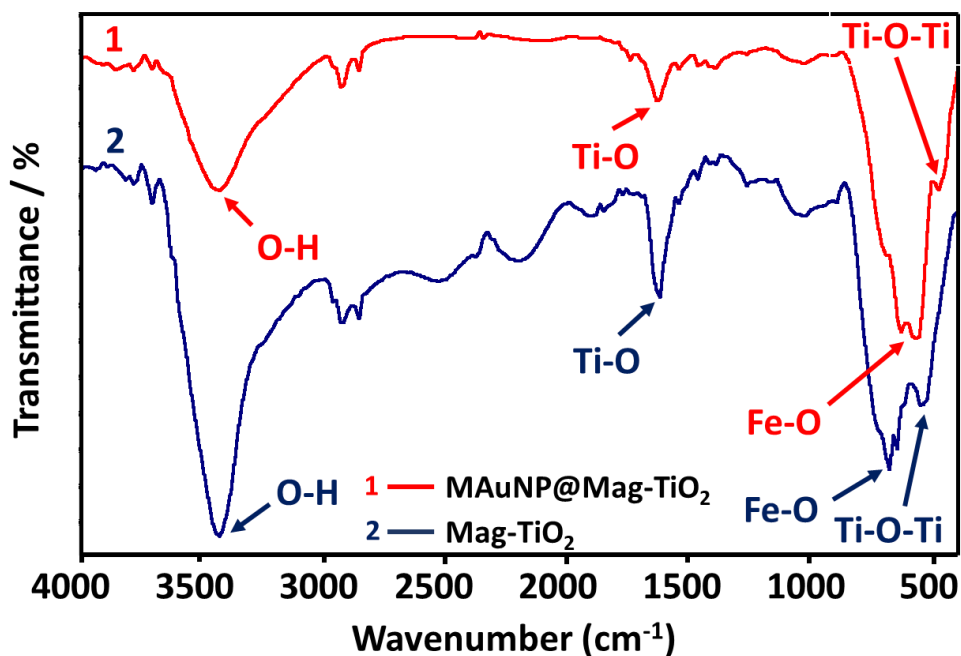
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Electronic Supplementary Material

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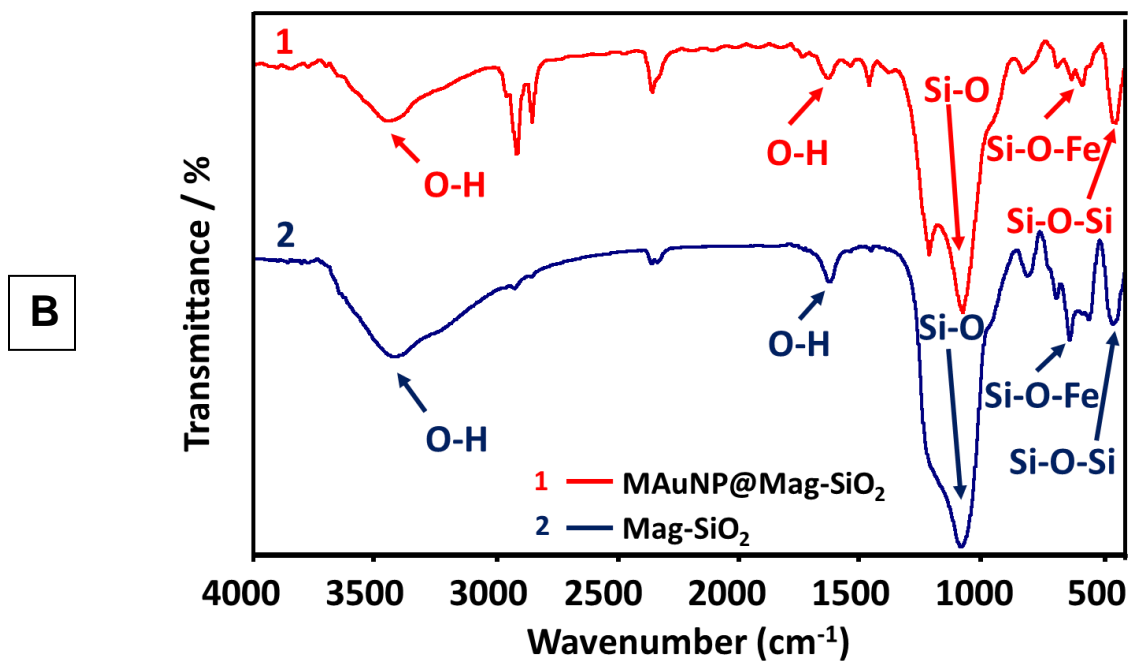


Figure S1. FTIR spectra of (A) 1.MAuNP@Mag-TiO₂ 2.Mag-TiO₂ microspheres and (B) 1.MAuNP@Mag-SiO₂, 2. Mag-SiO₂ microspheres.

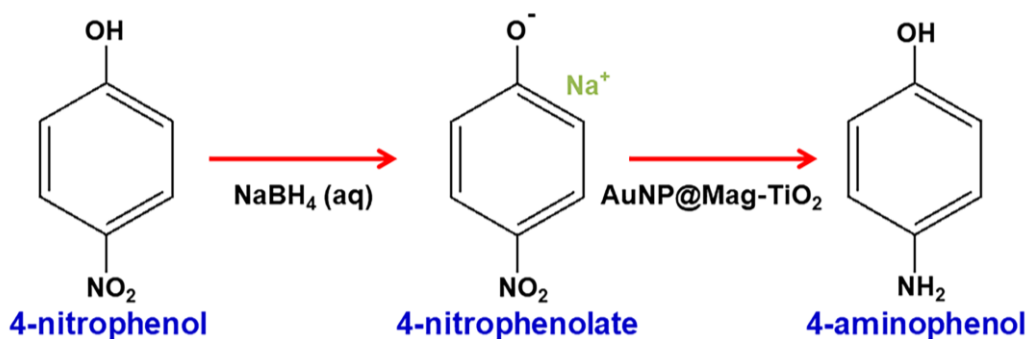


Figure S2. The reaction for the plasmonic reduction of 4-NP to 4-AP.

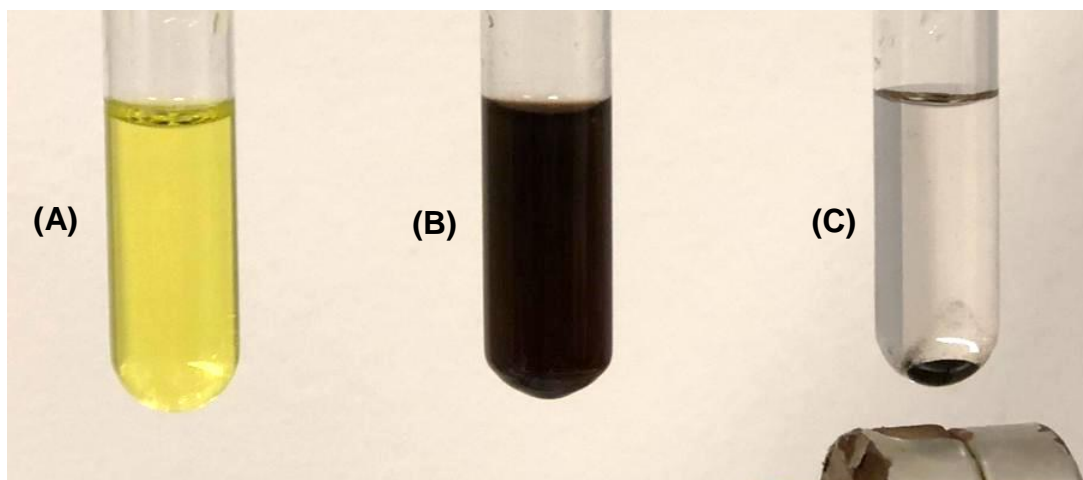


Figure S3. The optical images of color change observed for conversion of 4-NP to 4-AP (A) Initial 4-nitrophenolate solution before adding MAuNP@Mag-TiO₂ microspheres, (B) 4-nitrophenolate solution after addition of MAuNP@Mag-TiO₂ microspheres during the conversion of 4-NP to 4-AP, (C) the solution after separating MAuNP@Mag-TiO₂ microspheres from the reaction medium by an external magnet, when complete conversion of 4-NP to 4-AP was obtained. To demonstrate more clearly the collection and separation of magnetic catalyst by means of an external magnet, extremely higher amount of catalyst (25 mg) with respect to that used in the catalytic runs (1 mg) was loaded into the reaction volume (26.5 mL) for taking the images given in (B) and (C).

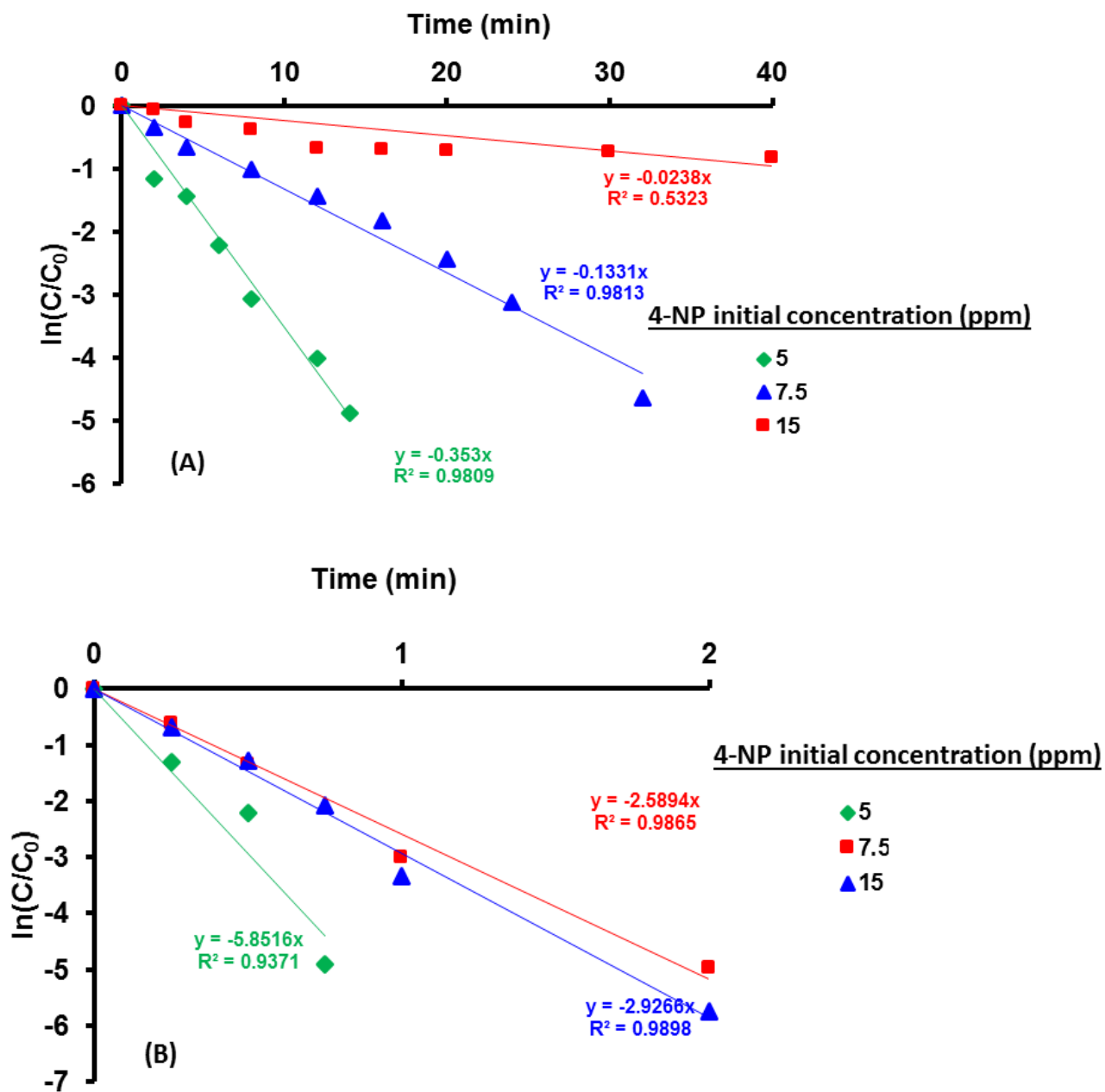


Figure S4. The kinetic curves used for the determination of first order apparent rate constants for different 4-NP initial concentrations in the presence of (A) T AuNP@Mag-TiO₂ and (B) MAuNP@Mag-TiO₂ microspheres.

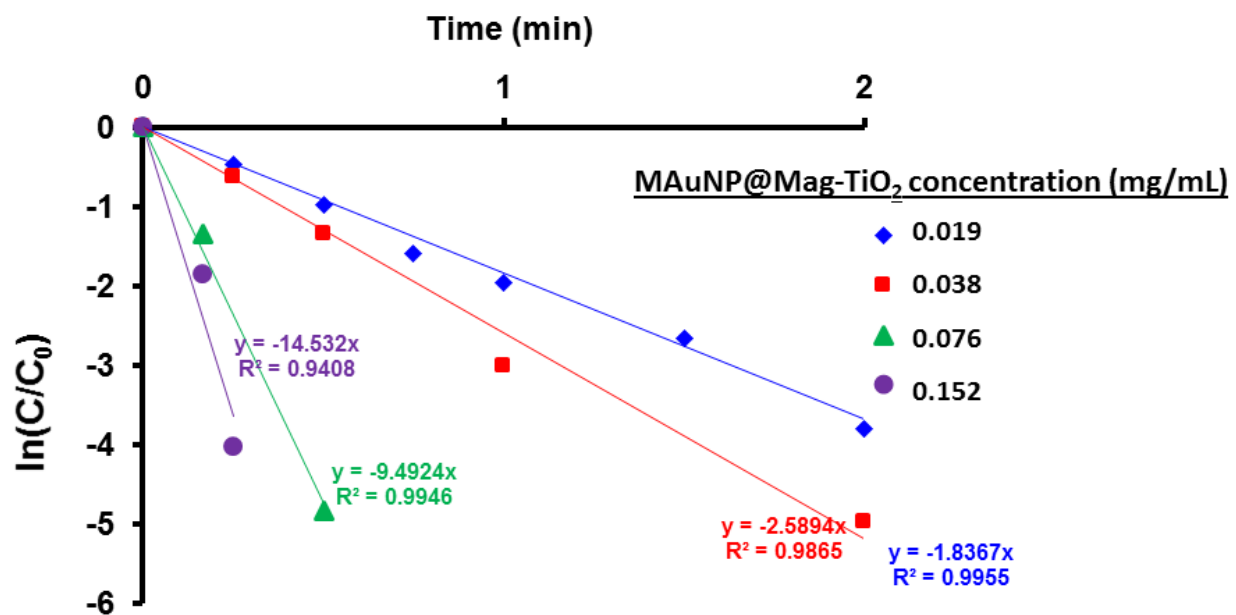


Figure S5. The kinetic curves used for the calculation of first order apparent rate constants for different MAuNP@Mag-TiO₂ concentrations.