

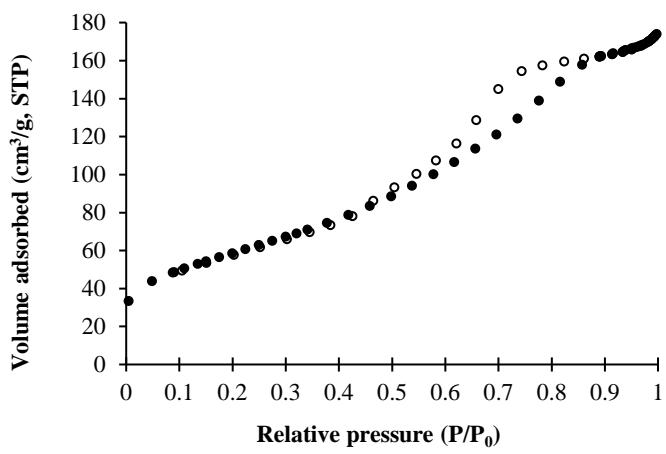
Fast microwave synthesis of gold doped TiO₂ assisted by modified cyclodextrins for photocatalytic degradation of dye and hydrogen production

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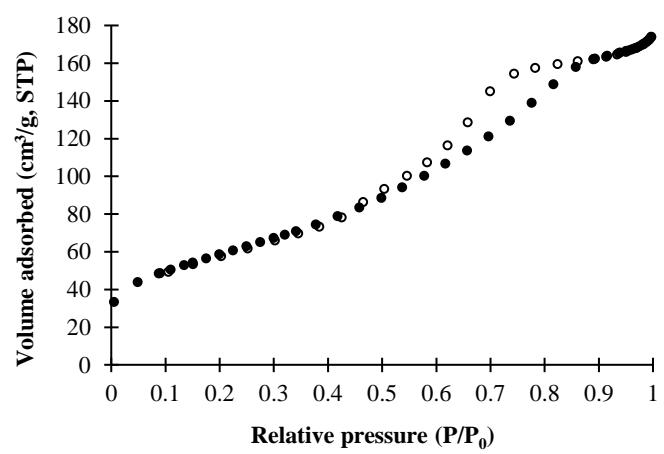
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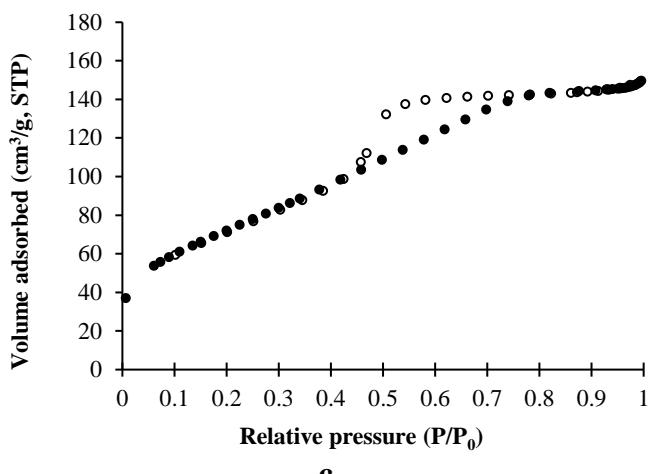
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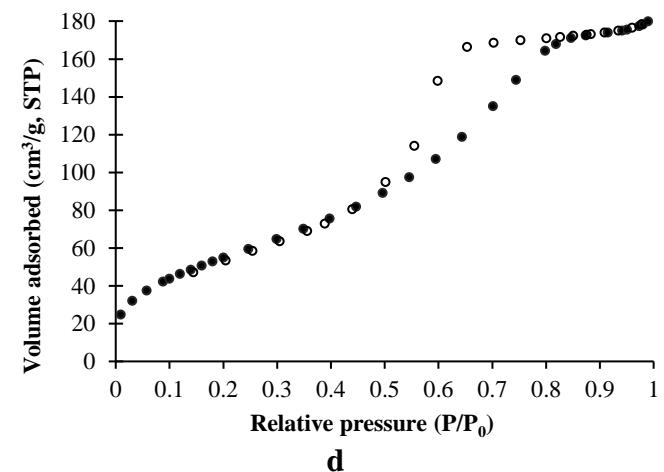
a



b



c



d

Figure S1. N_2 adsorption desorption isotherms of TiO_2 -control (a) gold decorated titania materials prepared without CD ($TiO_2@Au$) (b) gold decorated titania materials prepared with HP- β -CD ($TiO_2@Au-HP$) (c) gold decorated titania materials prepared with RAME- β -CD ($TiO_2@Au-RB$) (d)

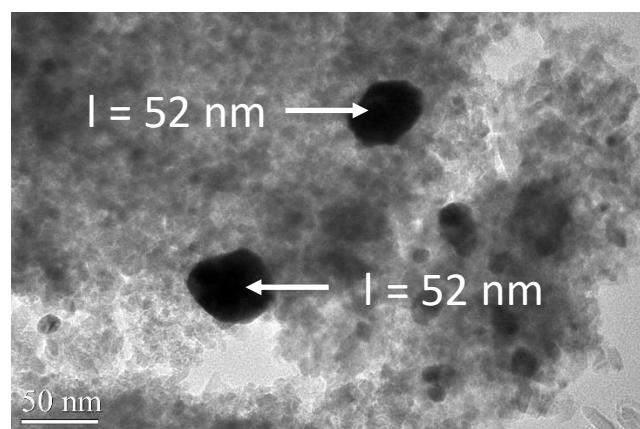
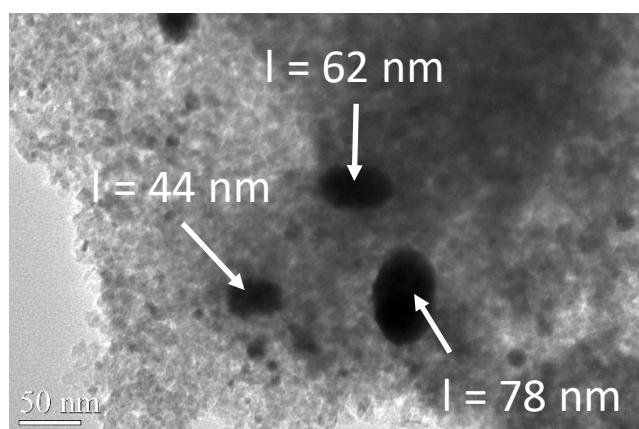
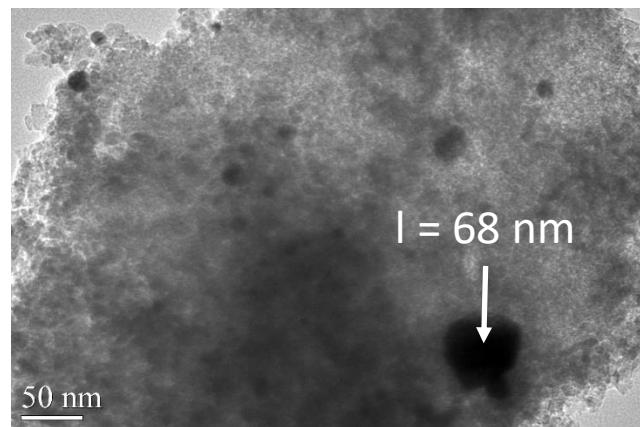


Figure S2. TEM images of $\text{TiO}_2@\text{Au}$ catalyst at magnification of $\times 62000$

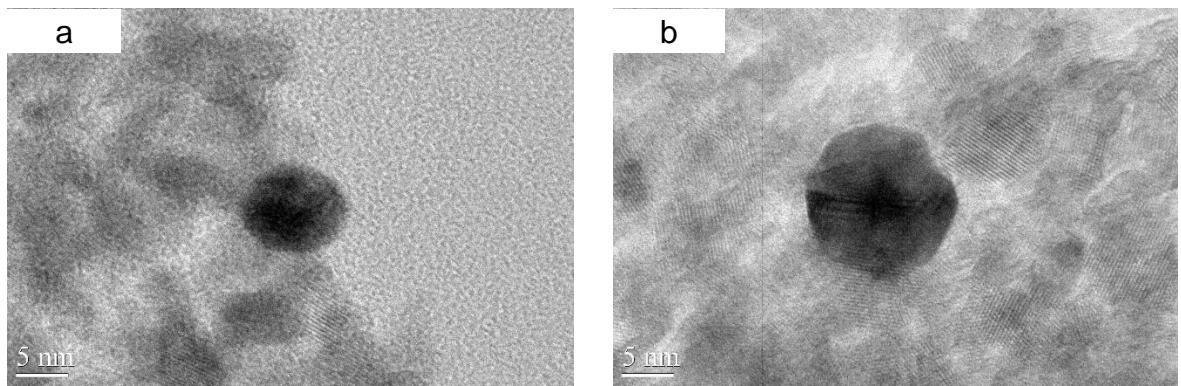


Figure S3. TEM images of (a) $TiO_2@Au$ -RB and (b) $TiO_2@Au$ -HB at magnification of $\times 490\,000$

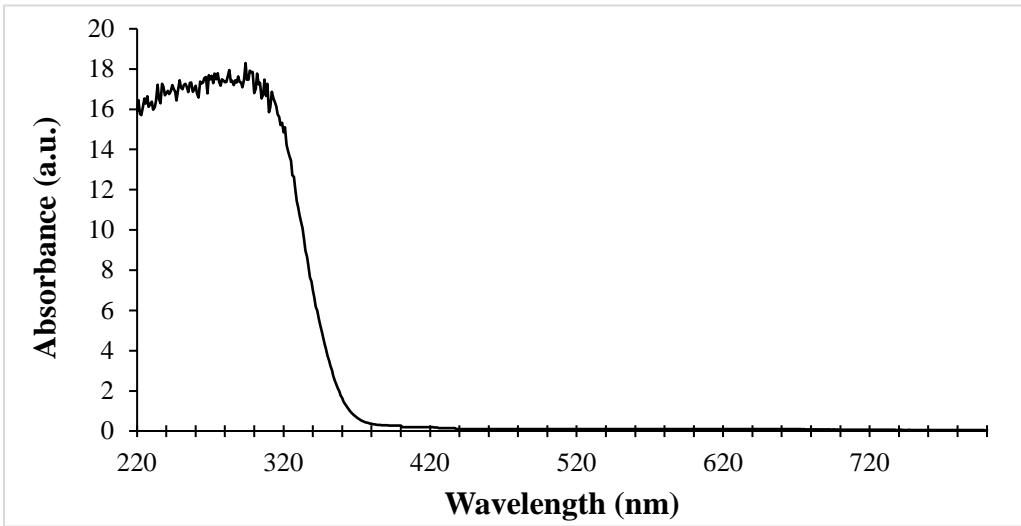


Figure S4. DRUV-Vis spectra of titania materials prepared by a two-step microwave heating procedure with HAuCl₄ in a second step but without CD and without ethanol

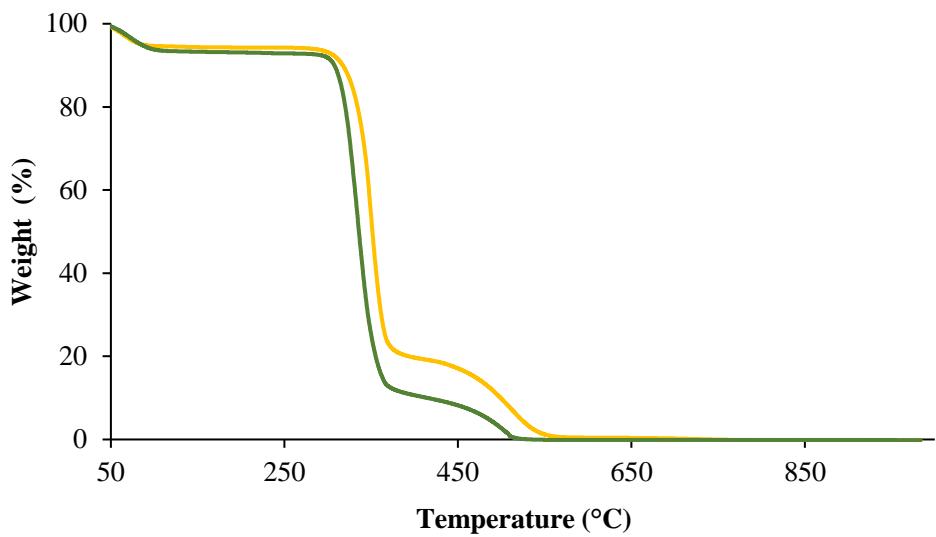


Figure S5. TGA profiles for the RAME- β -CD and the HP- β -CD

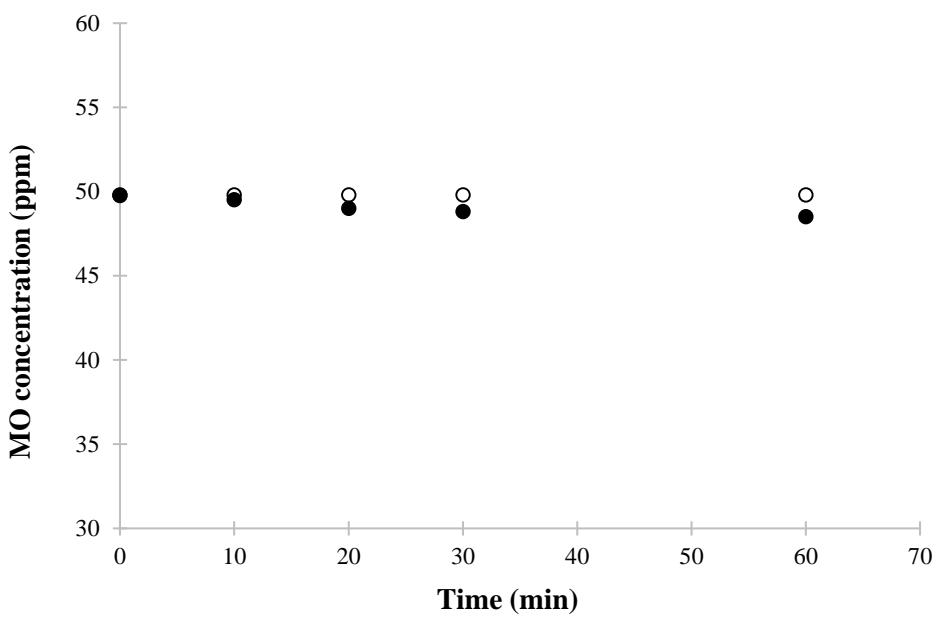


Figure S6. Evolution of methyl orange concentration under irradiation ($\lambda=365\text{ nm}$) as a function of time in the absence (open circle) or presence of the bare TiO_2 prepared by microwave process (filled circle). Reaction conditions: TiO_2 , $m = 10\text{ mg}$; methyl orange solution, $V = 4\text{ mL}$ (50 ppm)

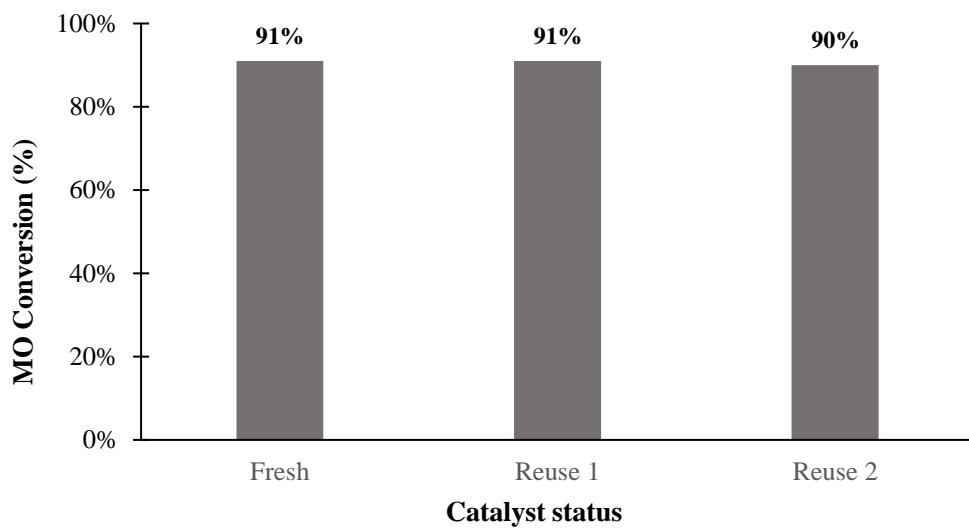


Figure S7. Performance of $TiO_2@Au-RB$ in three consecutive tests with reuse of the catalyst.
Reaction conditions: 4 mL of a solution of methyl orange (50 ppm), 10mg of $TiO_2@Au-RB$
($\lambda=365\text{ nm}$, $t=10\text{ min}$):

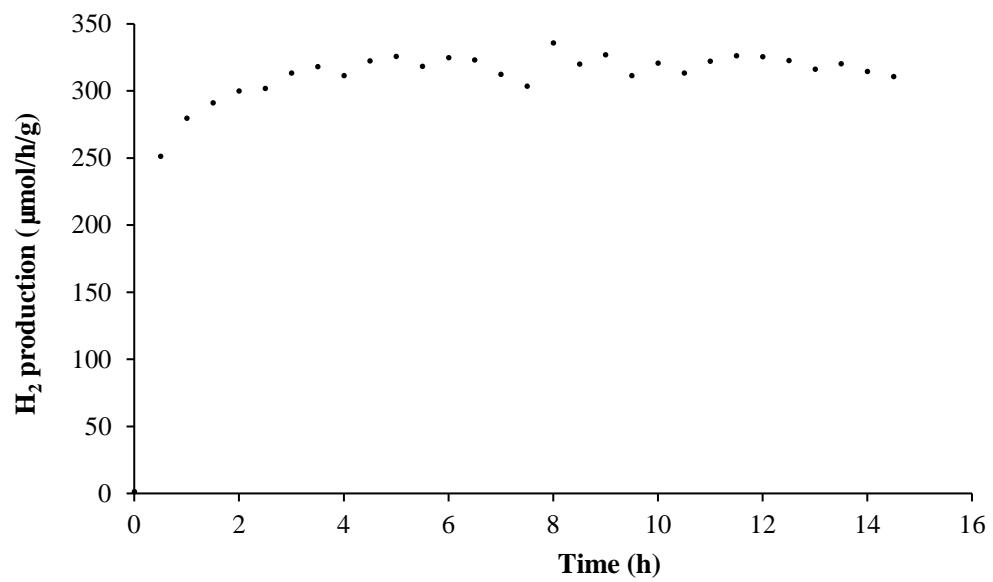


Figure S8. Production of hydrogen by photoreduction of water (80mL) in the presence of $TiO_2@Au-RB$ (100 mg) and ethanol (20mL) as sacrificial agent ($\lambda=365$ nm):