Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Supplementary information

Enhancing photocatalytic hydrogen production by using different types of cellulose as sacrificial agents.

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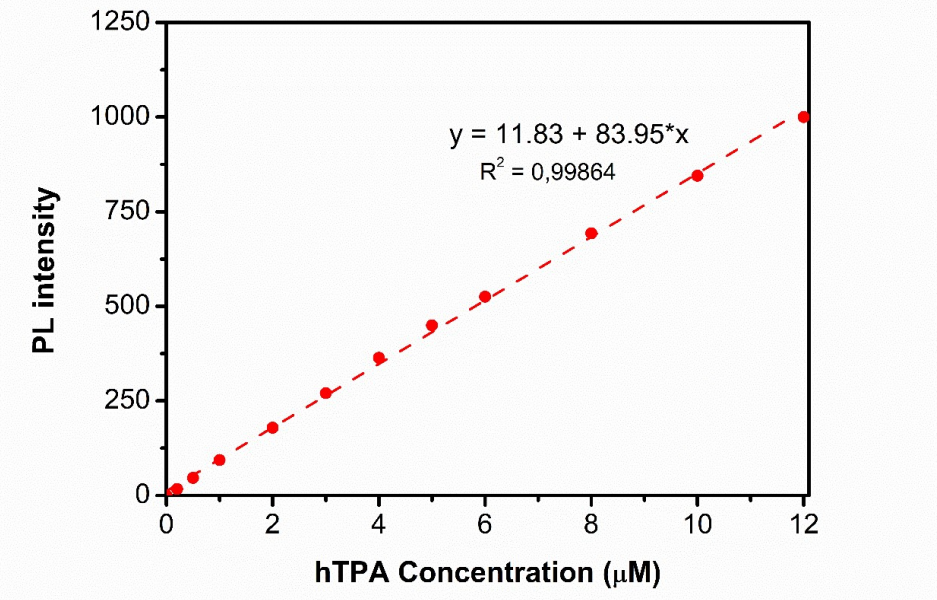

Fig. S1 calibration curve for calculation of 2-hydroxy terephthalic acid (hTPA) concentration regarding photoluminescence (PL) intensity. The excitation wavelength corresponds to 325 nm, and the emission wavelength to 432 nm.

Table S1 Photoluminescence intensity (PL) measured after irradiation of disodium terephthalic acid (TPA) and 0.3 mg/ml of photocatalyst solution. Emission wavelength 432 nm and excitation wavelength of 325.

Time (min)	**PL intensity**			
	TiO_2	**0.2Pt-TiO_2**	**0.5Pt-TiO_2**	**1Pt-TiO_2**
0	0	-0,36	0,55	0,77
10	227,19	349,12	298,3	415,66
20	414,61	557,38	599,69	810,47
30	626,04	709,31	897,99	915,76

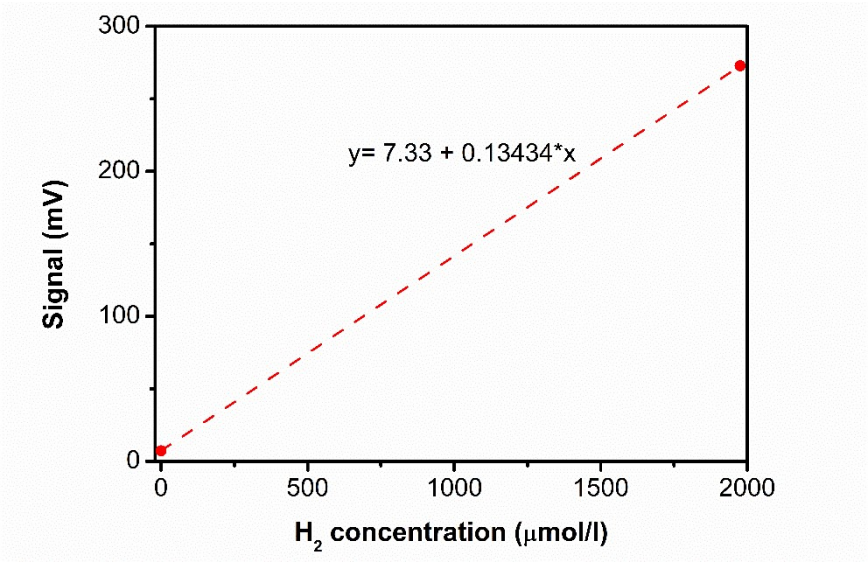

Fig. S2 Two points calibration curve for hydrogen concentration measurement using Unisense microsensor. Calibration was performed at 40 ºC.

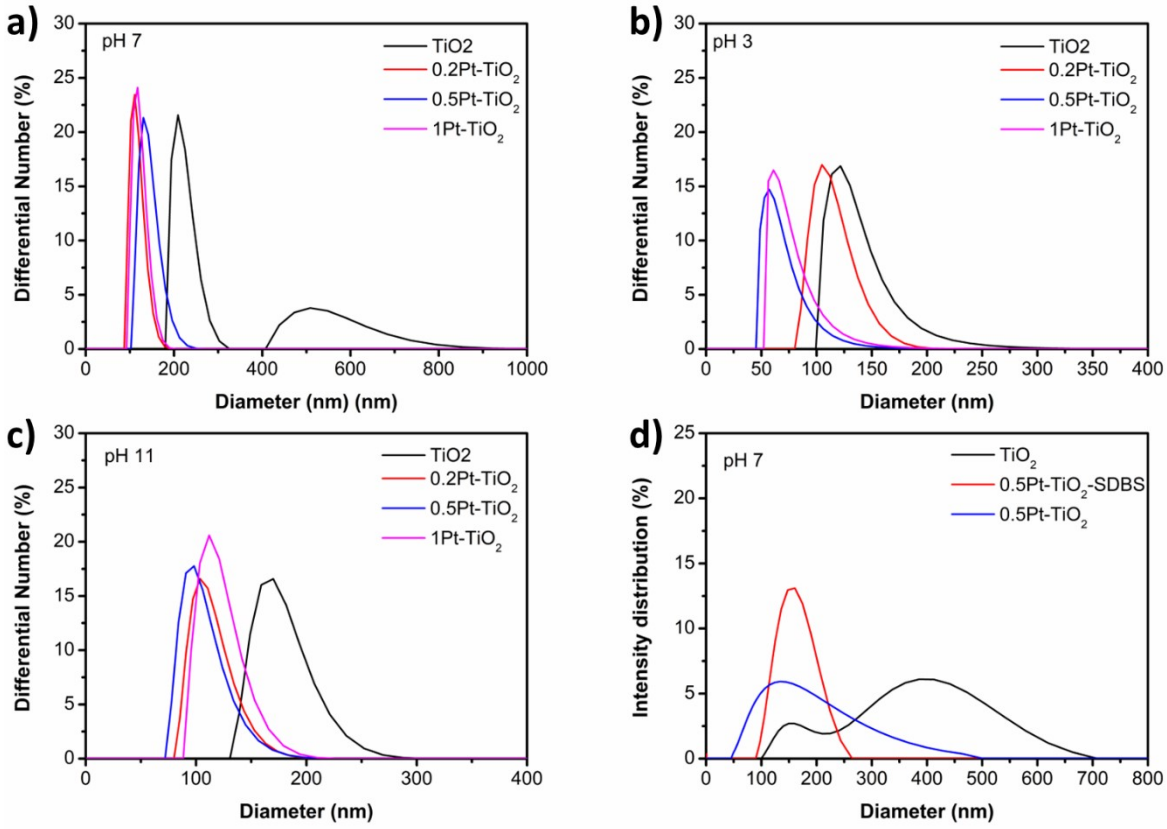

Fig. S3 Dynamic light scattering measurements at different pH, showing the hydrodynamic diameter of bare titanium dioxide (TiO_2), 0.2 w% of Pt loaded on TiO_2 (0.5Pt- TiO_2, 0.5 w% Pt deposited on TiO_2 (0.5Pt-TiO_2) and 1 w% Pt on TiO_2 (1Pt-TiO_2) at a) pH 7, b) pH 3, c) pH 11 and d) intensity distribution of bare TiO_2, 0.5 w% Pt deposited on TiO_2 loading using sodium dodecyl benzene sulfonate (0.5Pt- TiO_2-SDBS) and without SDBS (0.5Pt- TiO_2).

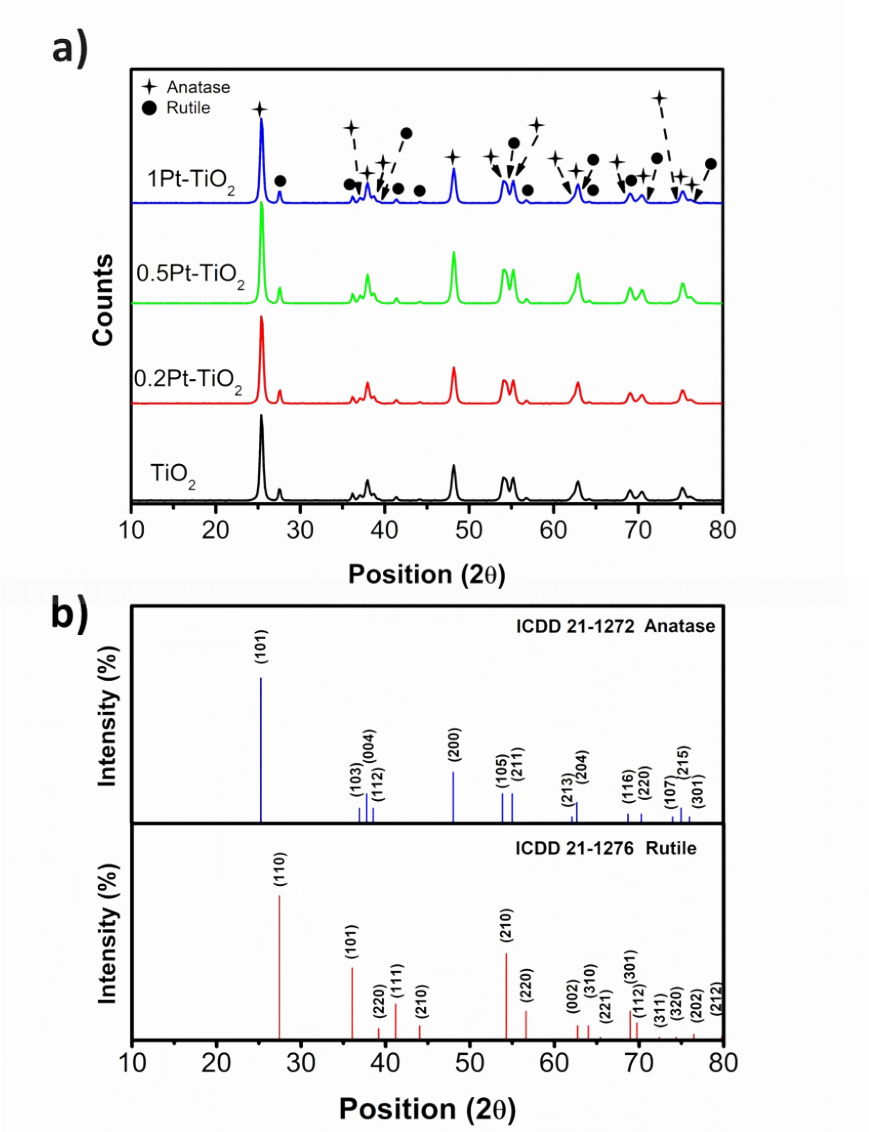

Fig. S4 a) XRD pattern corresponding to commercial Titanium dioxide (TiO_2), 0.2 w% of Pt loaded on TiO_2 (0.2Pt-TiO_2), 0.5 w% of Pt on TiO_2 (0.5Pt-TiO_2) and 1 w% of Pt deposited on TiO_2 (1Pt-TiO_2). b) Anatase and Rutile phase diffractograms given by the international centre for diffraction data files Nº 21-1272 and 21-1276, respectively.

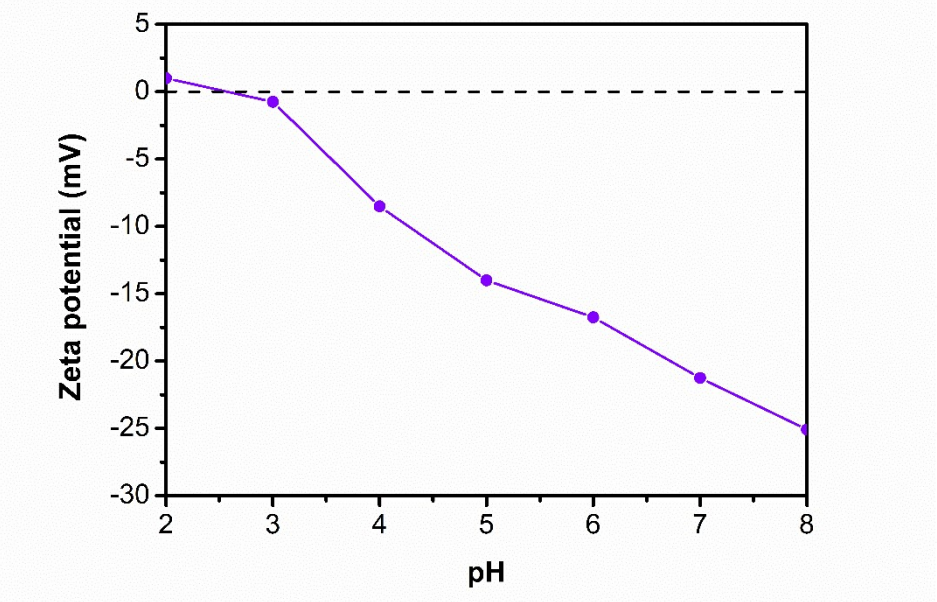

Fig. S5 Zeta potential diagram for sodium carboxymethyl cellulose (CMC-Na)