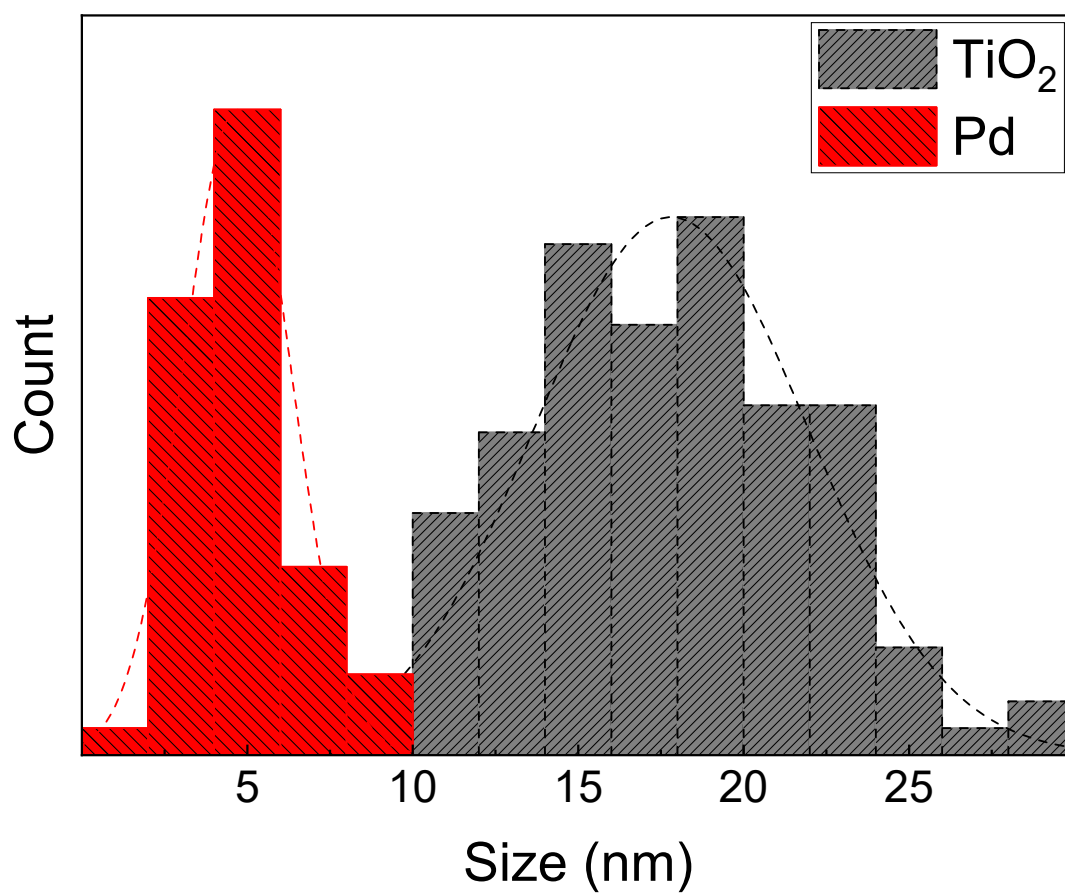
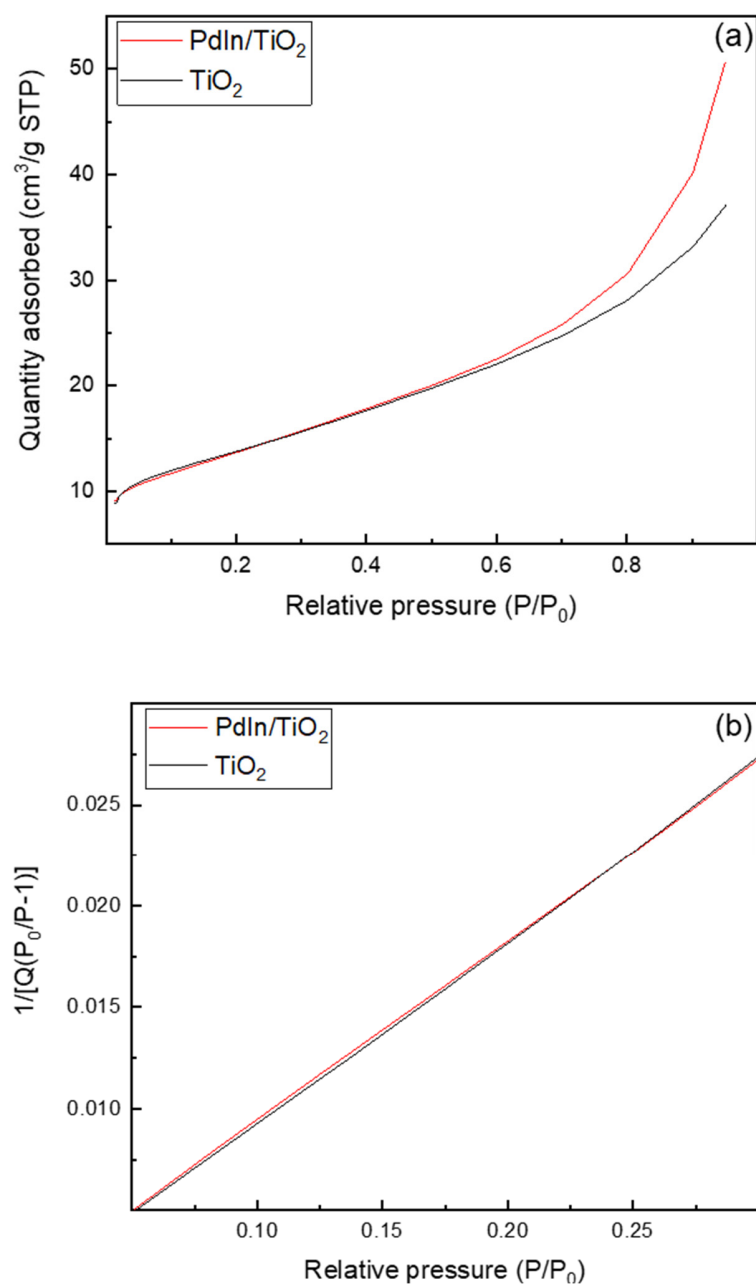


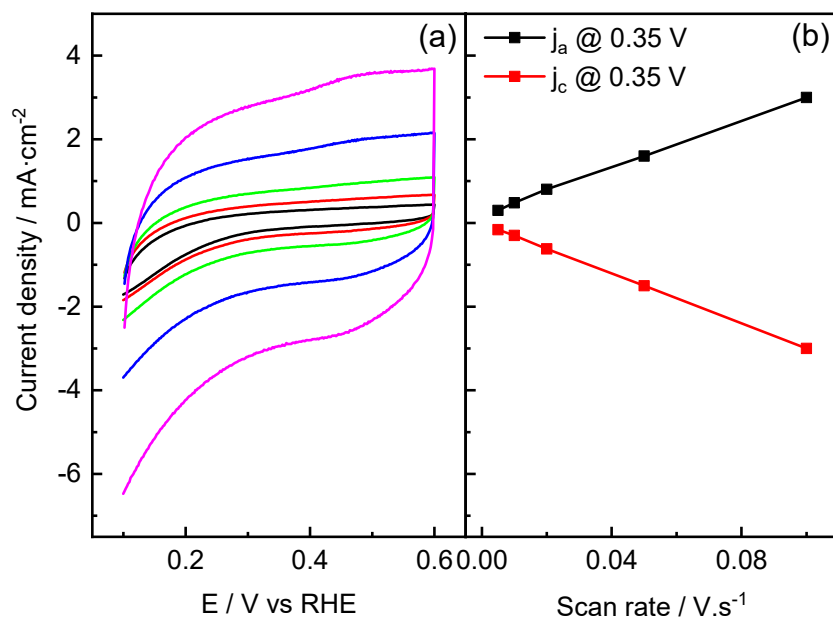
## SUPPLEMENTARY INFORMATION



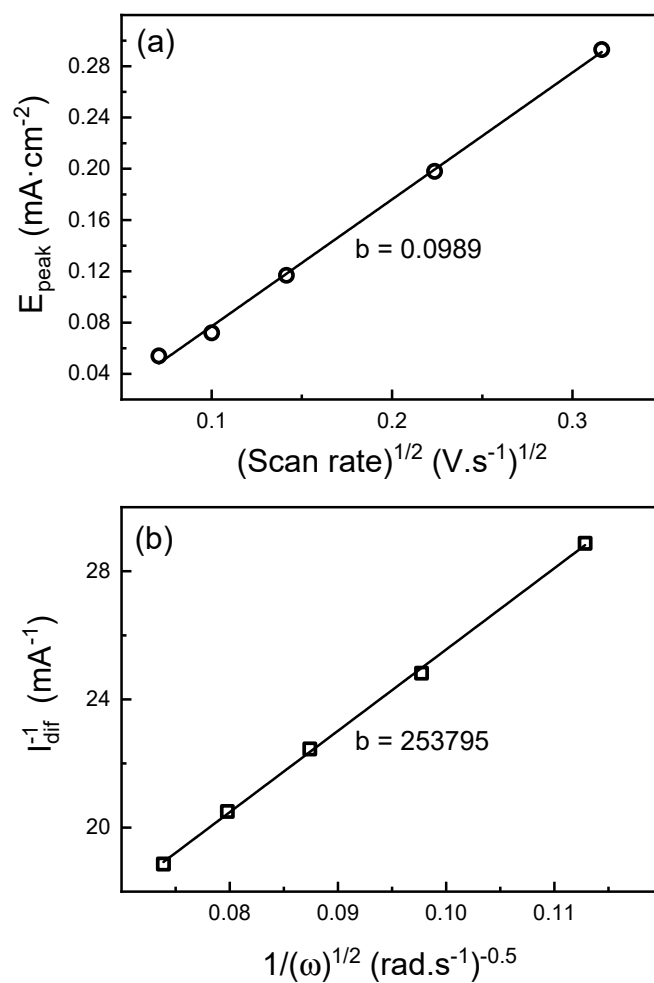
**Figure S1.** Particle size distribution of  $\text{TiO}_2$  and Pd obtained from counts of different regions and TEM micrographs.



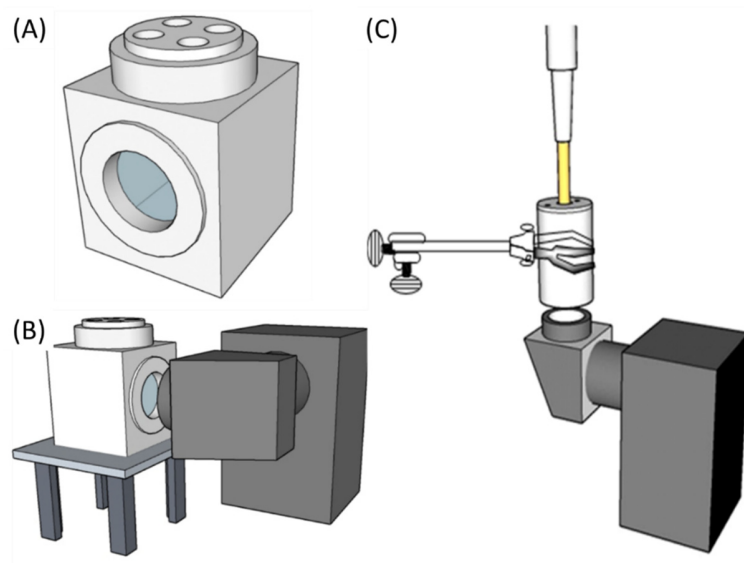
**Figure S2.** (a) Nitrogen adsorption/desorption isotherms of  $\text{TiO}_2$  and  $\text{PdIn/TiO}_2$ . (b) BET surface area plot of  $\text{TiO}_2$  and  $\text{PdIn/TiO}_2$ .



**Figure S3.** (a) Cyclic voltammograms recorded at different sweep rates 5 (black line), 10 (red line), 20 (green line), 50 (blue line) and 100 (pink line) mV.s<sup>-1</sup> at GC electrode in 0.1 M phosphate buffer solution. (b) Current density (mA.cm<sup>-2</sup>) as a function of scan rate (V.s<sup>-1</sup>). Data acquired from Fig. S3a at 0.3 V.



**Figure S4.** Linear fit of current peak vs square root of scan rate (a) and diffusion current vs the inverse of square root rotation rate (b). Data acquired from Fig. 8.a and 8.b, respectively.



**Figure S5.** Illustration of the system (not to scale) used for photoelectrochemical assays. (A) Photoelectrochemical cell with four holes for RE, WE, AE, and recirculation of inert gas. (B) Arrangement of cell and lamp spaced 2 cm apart. (C) Arrangement for the RDE system.