ISO 25178			ISO 25178			ISO 25178		
Height Parameters			Height Parameters			Height Parameters		
Sq	3.12	nm	Sq	4.3	nm	Sq	4.8	nm
Ssk	0.209		Ssk	0.916		Ssk	0.409	
Sku	3.65		Sku	8.66		Sku	4.5	
Sp	25.5	nm	Sp	56.8	nm	Sp	48.3	nm
Sv	12.5	nm	Sv	16.1	nm	Sv	18.1	nm
Sz	37.9	nm	Sz	72.9	nm	Sz	66.5	nm
Sa	2.48	nm	Sa	3.3	nm	Sa	3.8	nm

Supplementary information

Figures S1: Parameters tables for the images shown in Figure 3 (a), Figure 3 (b) and Figure 3 (c) respectively, the parameter sq implies (Picoimage software) the root mean square value of the surface which is linearly increase with respect to gold nanoparticles density.

FESEM images of gold nanoparticles on ITO with various concentrations



Figures S2. FESEM images of a) as prepared gold nanoparticles on ITO (0.1% surface coverage), b) centrifuged with mild dilution of gold nanoparticles on ITO (0.8%) and c) centrifuged gold nanoparticles on ITO (2.1%).



XPS spectrum of 2.10% surface covered gold nanoparticles on ITO

Figure S3. XPS spectrum of 2.10% surface covered gold nanoparticles on ITO

Source - http://srdata.nist.gov/xps/



Figure S4. The AFM image indicates that the further increment of surface coverage of AuNPs lead to the agglomeration of nanoparticles ascribed to their poor stability



Figure S5. Comparison of JV plot of reference Hole only device with AuNPs with coverage 2.10 % and 100 % on anode.