

# Supplementary materials

## Near-zero waste process for the recovery of palladium from a spent Pd/TiO<sub>2</sub> catalyst through a sequential process of mild acidic leaching and photodeposition on ZnO nanoparticles

### Authors

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### 1. DRUV-vis spectroscopy

**Table S – 1.** E<sub>g</sub> values (eV) detected for all the tested photocatalysts.

Sample	E <sub>g</sub> (eV)
Commercial ZnO	3.18
ZnO-S Air 200°C	3.23
ZnO-S Air 500°C	3.25
ZnO-S N <sub>2</sub> 200°C	3.26
ZnO-H	3.23
ZnO-S Air 200°C-II	3.27
ZnO-S Air 200°C-III	3.26

## 2. XRD

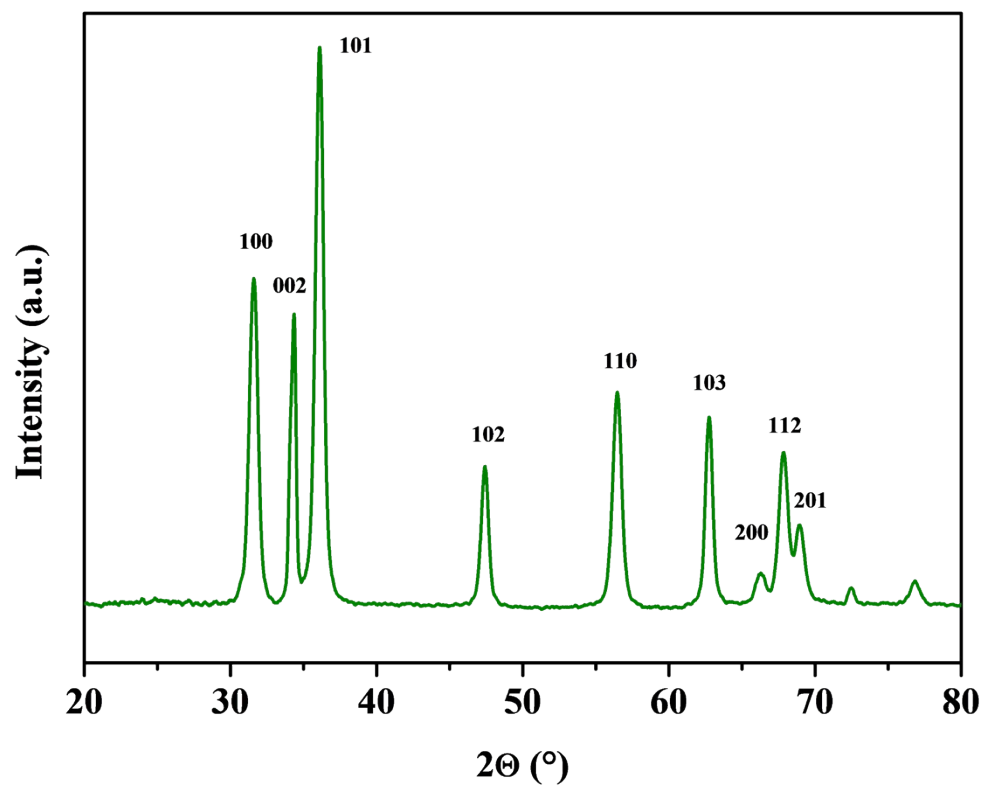


Figure S – 1. Diffractogram of ZnO-H sample.

### 3. SEM

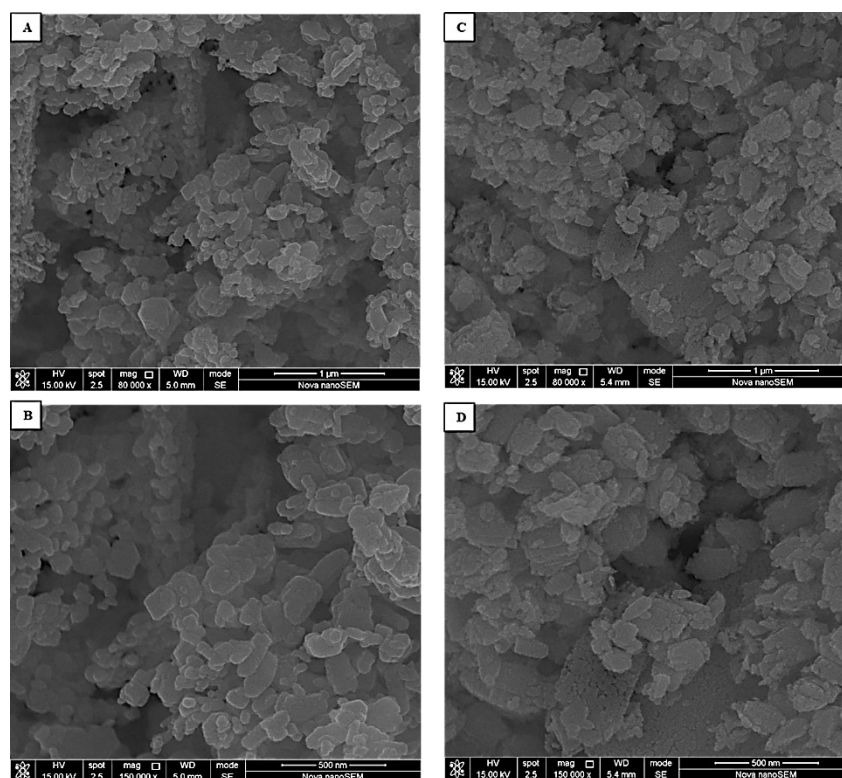


Figure S – 2. SEM images of ZnO – S Air 200°C I (A, B) and ZnO – S Air 200°C II (C, D) prepared through sol-gel synthesis.

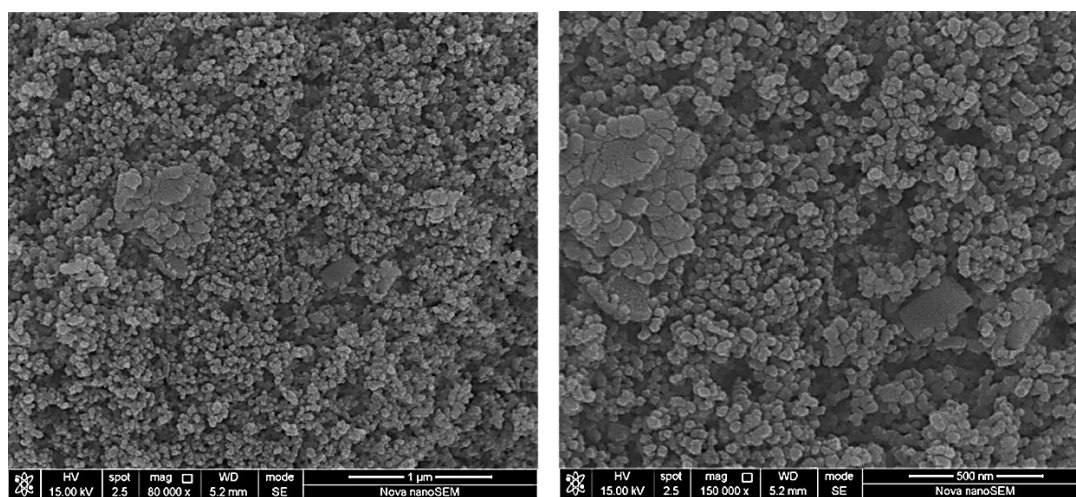


Figure S – 3. SEM images of commercial Pd/ZnO sample, recovered after the reaction.

#### 4. TEM - Particle size distribution

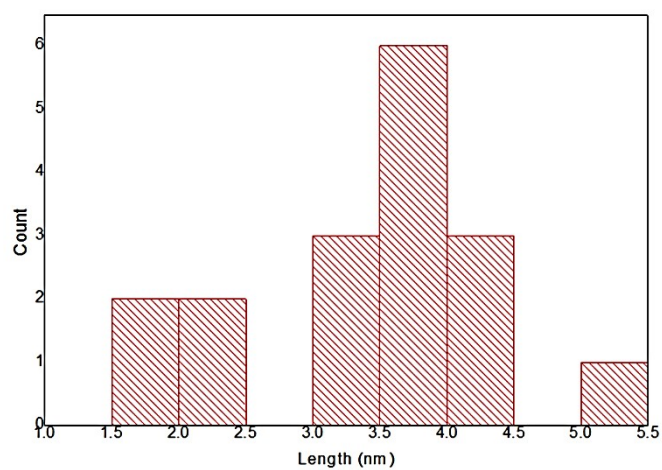
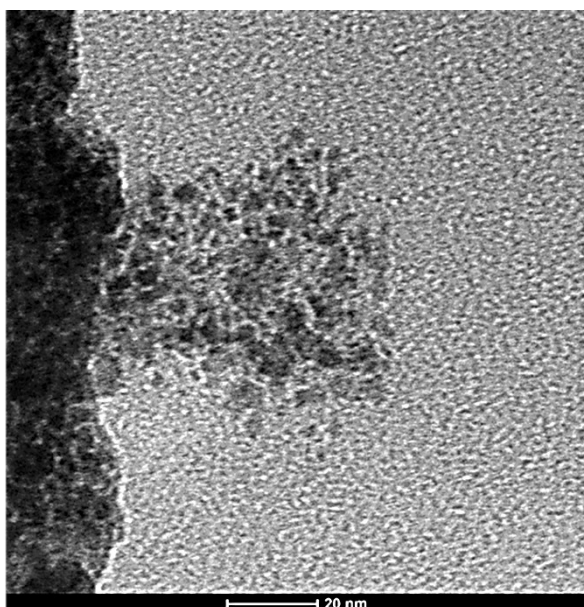
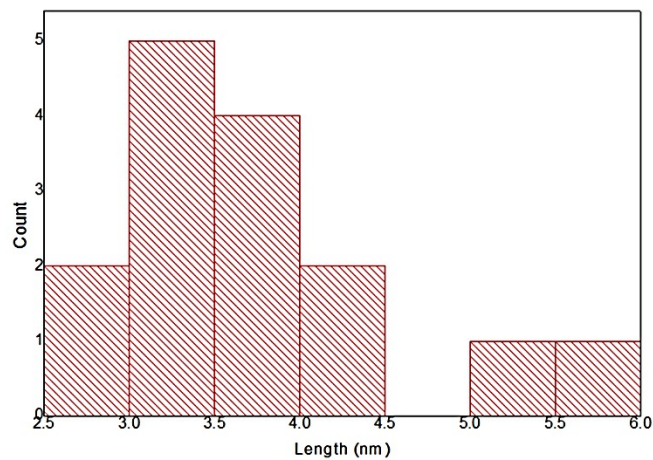
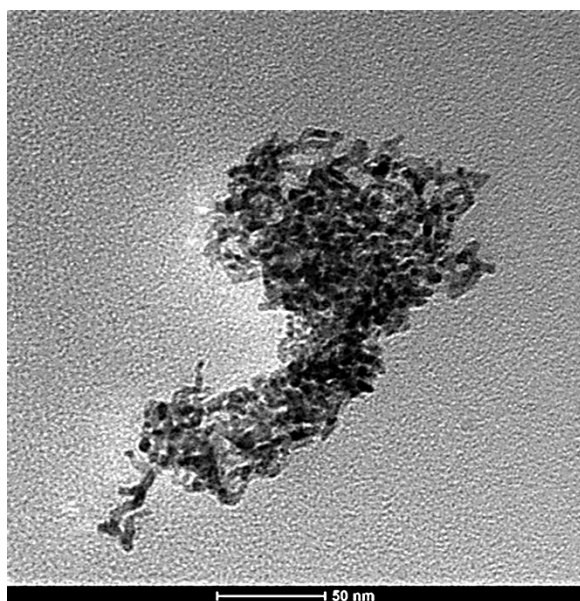


Figure S – 4. TEM micrograph images with their corresponding particle size distribution histogram for palladium recovered through photodeposition at lower (top) and higher magnification (bottom).

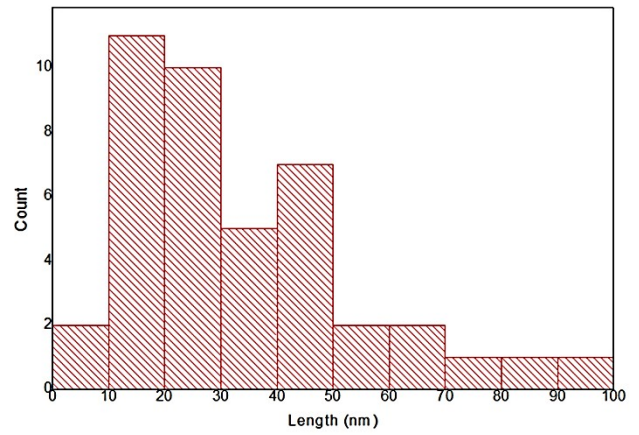
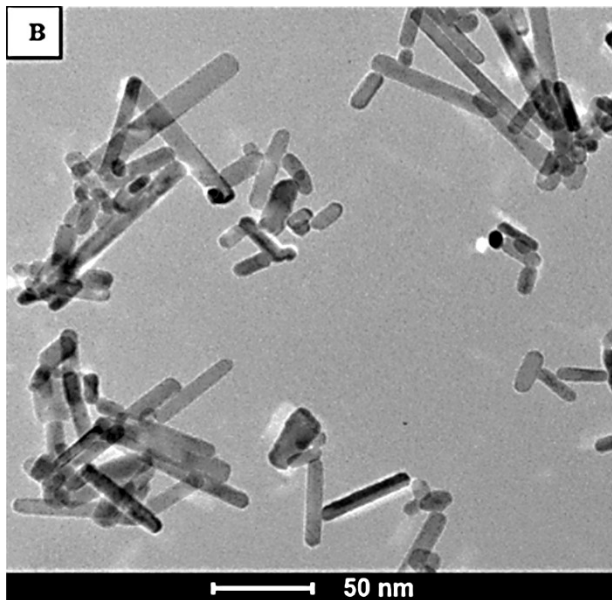
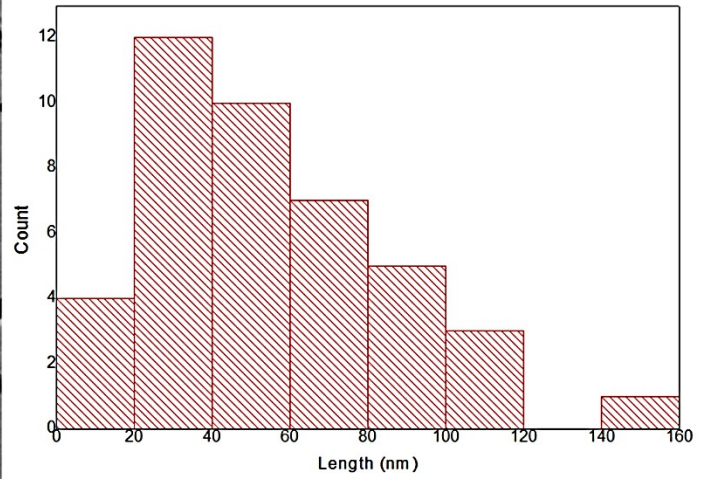
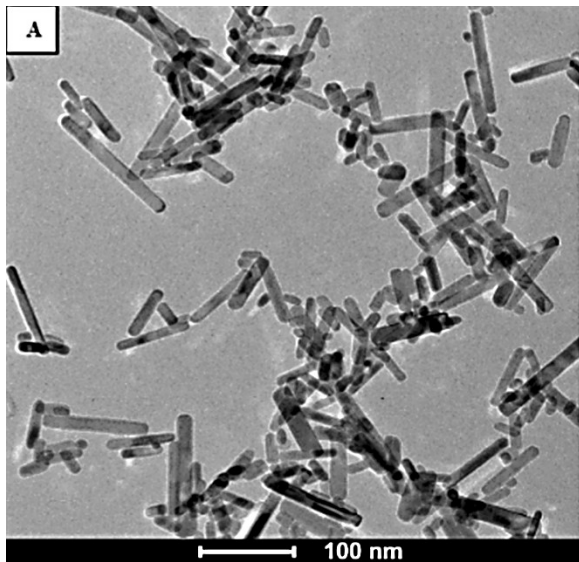


Figure S – 5. TEM micrograph images with their corresponding particle size distribution histogram for ZnO-H nanorods at lower (A) and higher magnification (B).