

## Construction of Artificial Inorganic Leaf CdS-BiVO<sub>4</sub> Z-scheme and its Enhancement Activities for Pollutant Degradation and Hydrogen Evolution

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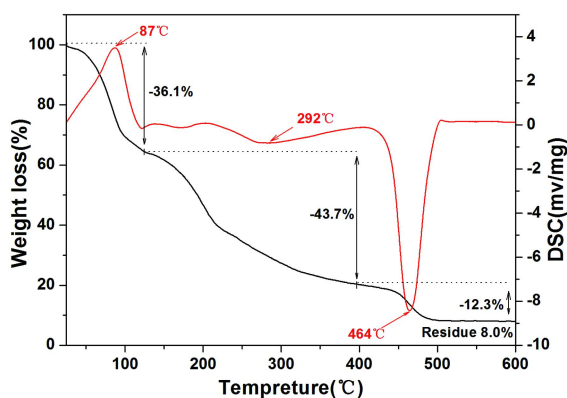


Fig. S1 TG-DSC curves of CNSiBiVO<sub>4</sub>.

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In order to find more leaf-like structures, the morphologies of CNSiBiVO<sub>4</sub> were further observed by FE-SEM (shown in Fig. S2) and the natural leaf structures were surveyed via fluorescence electron microscope (shown in Fig. S3). Compared the natural leaf's vein part (Fig. S3a), surface part (Fig. S3b) and cross section (Fig. S3c) with CNSiBiVO<sub>4</sub>'s vein section (Fig. S2a and b), surface section (Fig. S2c-f), side section (Fig. S2g) and inside section (Fig. S2h and i), we can find that, after annealing process, some of the natural leaf's structure was retained in CNSiBiVO<sub>4</sub>. However, we had to admit that there are some natural leaf's structure that are not been proved still retained in CNSiBiVO<sub>4</sub>, such as the three-dimensional constructions of interconnected nanolayered thylakoid cylindrical stacks (granum) in chloroplast.

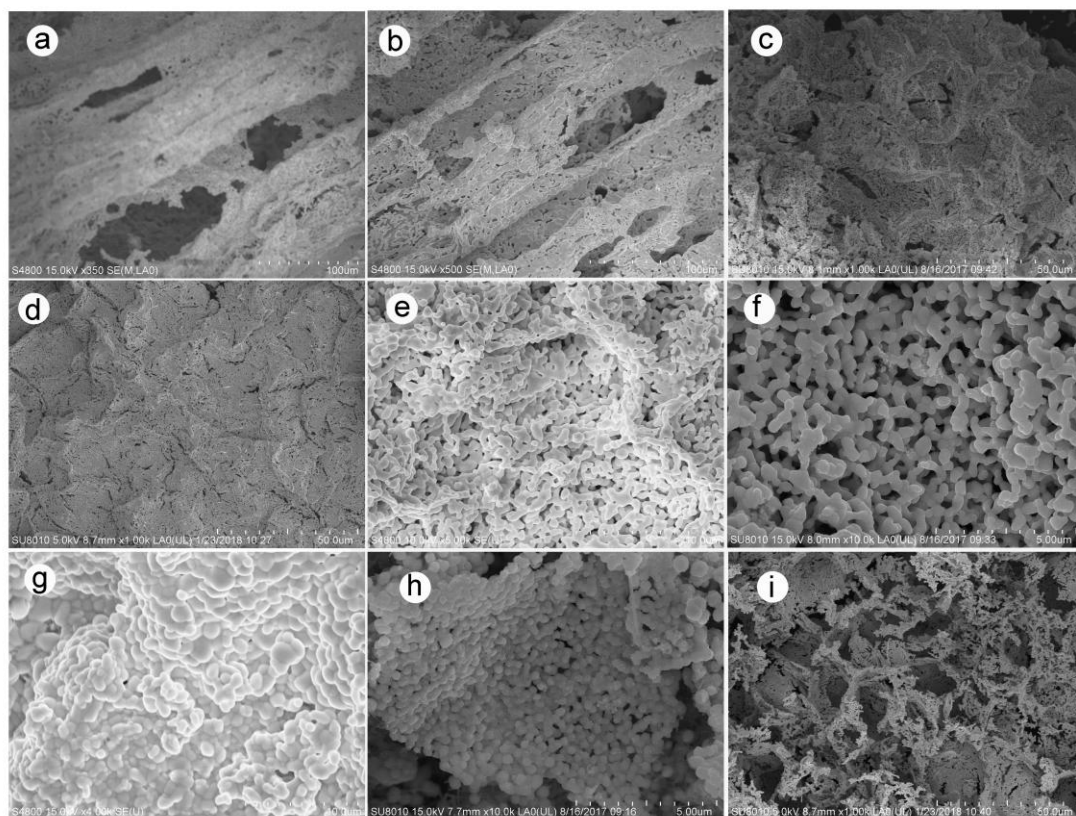


Fig. S2 FE-SEM images of the as-prepared CNSiBiVO<sub>4</sub>. (a and b) the vein section of CNSiBiVO<sub>4</sub>; (c-f) the surface section of CNSiBiVO<sub>4</sub>; (g) the side section of the CNSiBiVO<sub>4</sub>; (h-i) the inside section of CNSiBiVO<sub>4</sub>.

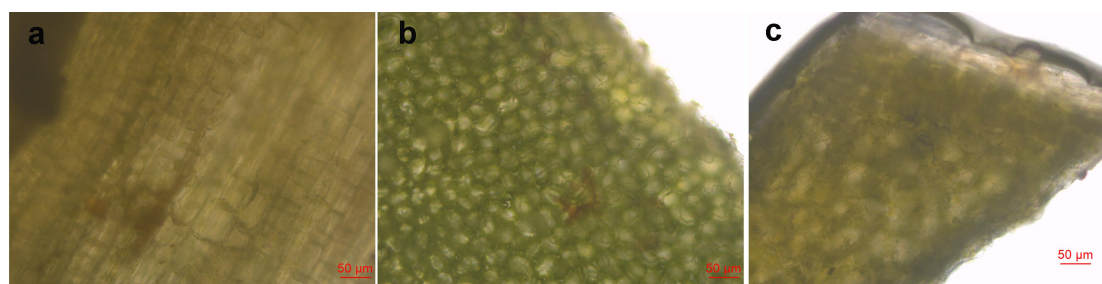


Fig. S3 Fluorescence electron microscopy images of the leaf of Chongyang wood seedling (a) vein part; (b) surface part; (c) cross section.

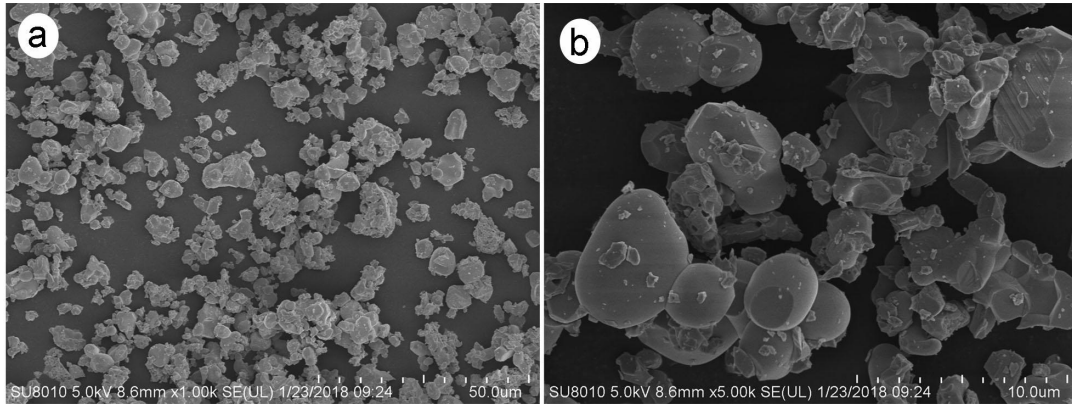


Fig. S4 FE-SEM images of no template  $\text{BiVO}_4$ .

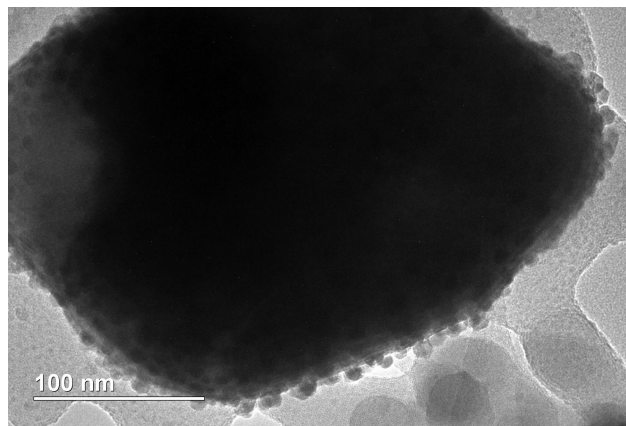


Fig. S5 TEM image of  $\text{CdS-CNSiBiVO}_4$ -(no-Pt).

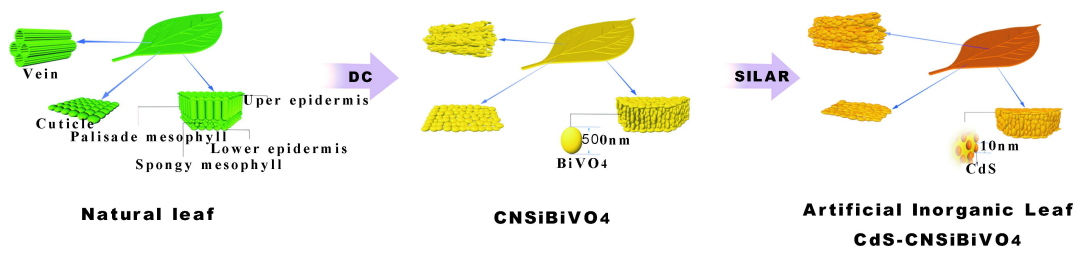


Fig. S6 Structure and composition schematic diagram of natural leaf,  $\text{CNSiBiVO}_4$  and  $\text{CdS-CNSiBiVO}_4$ .