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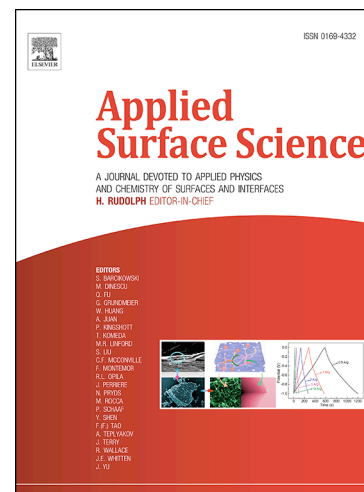
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# Synthesis of carbon doped $\text{Bi}_2\text{MoO}_6$ for enhanced photocatalytic performance and tumor photodynamic therapy efficiency

Yongxing Xing<sup>a</sup>, Xuechuan Gao<sup>a</sup>, Guanfeng Ji<sup>a</sup>, Zhiliang Liu<sup>a</sup>, Chunfang Du<sup>\*a,b</sup>

<sup>a</sup>College of Chemistry and Chemical Engineering, Inner Mongolia University, Hohhot, Inner Mongolia, 010021, P. R. China.

<sup>b</sup>Hunan Key Laboratory of Mineral Materials and Application, Central South University, Changsha, 410083, P. R. China

Corresponding author E-mail: cedchf@imu.edu.cn; Fax: +86-471-4994375; Tel: +86-471-4994375

## ABSTRACT

In this work, a series of carbon-doped  $\text{Bi}_2\text{MoO}_6$  nanomaterials were synthesized by hydrothermal-calcination method using biomass carbon-glucose as carbon source for the first time. The carbon element substituted the host  $\text{O}^{2-}$  anions in the lattice of  $\text{Bi}_2\text{MoO}_6$ , which induced the lattice expansion, particle size reduction, specific surface area enhancement and band structure variation. The C-doped  $\text{Bi}_2\text{MoO}_6$  showed significantly enhanced and stable photocatalytic performance in removal of Rhodamine B (RhB), methyl orange (MO) and tetracycline hydrochloride (TC). Simultaneously, the carbon doped sample could also act as photosensitizer in tumor PDT and showed efficient PDT ability for HeLa cancer cells. The electron spin resonance (ESR) result confirmed that the carbon doped sample had higher reactive oxygen species (ROS) concentration than that of pristine  $\text{Bi}_2\text{MoO}_6$ , which are possibly responsible for the enhanced photocatalytic performance and PDT efficiency. This work would open a new

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