

Hollow Carbon Dots for Oxidative Couplings of Amines under Visible Light

박정현, Faizan Raza, 전수지, 김혜인, 임다빈,

강태욱, 김종호<sup>†</sup>

한양대학교

(kjh75@hanyang.ac.kr<sup>†</sup>)

We fabricated Mo-doped Hollow Carbon Dots (Mo-HCDs) through simple oxygen assisted solvothermal treatment of 2H-MoS<sub>2</sub> nanosheet dispersion in N-methyl-2-pyrrolidone. The structure and chemical composition of Mo-HCDs were identified using TEM, AFM, and XPS. Mo-HCDs showed strong fluorescence emission as well as absorption in visible region of electromagnetic spectrum, and their band gap was found to be 2.7 eV. Then, we investigated the photocatalytic activity of Mo-HCDs in the oxidative coupling reaction of various amines. The starting amino compounds including primary and secondary amines were converted into the corresponding imines with high yields by Mo-HCDs under visible light irradiation at room temperature.