

Abstract

A Nanocomposite of Silver Nanoparticles and Carbon Nanospheres for Photocatalytic Degradation of Methylene Blue under UV Irradiation [†]

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We have designed a nanocomposite of silver nanoparticles and carbon nanospheres (AgNPs/CNSs) as a catalyst for the rapid degradation of organic pollutants. The photocatalytic performance of the nanocomposite was examined by evaluating the degradation of methylene blue (MB) under UV light irradiation. The degradation percentages of the pollutant dye (MB) were: AgNPs/CNSs (~90.82%), AgNPs (~80.18%) under UV irradiation for 60 min. Furthermore, stability performance was studied by recycling the AgNPs/CNSs composite. It was found that the photocatalytic activity of the AgNPs/CNSs composite was slightly decreased, even after five cycles. In a nutshell, this novel composite AgNPs/CNSs exhibits remarkable time-dependent catalytic activity under UV light irradiation.

Supplementary Materials: The following are available online at <https://www.mdpi.com/article/10.3390/IOC2020-07974/s1>.