Synthesis of Luminescent Organic Nanoparticles via Air Oxidation of Halogen Derivatives of para-Substituted Anilines

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Organic nanoparticles (ONs) have attracted much attention due to their optical and electronic properties. However, studies for synthesizing ONs have been carried out only a few recent studies. In our research, we synthesized luminescent ONs via air oxidation of halogen derivatives of para-substituted anilines. These ONs present highly crystalline structures due to the ortho-coupling reaction of aniline and π-π interactions between the phenazine-like structures. The synthesized ONs show bright red-to-yellow luminescence with high color purity. We suggested plausible explanation for the synthesis of ONs and investigated photoluminescence (PL) and ultraviolet-visible (UV-vis) spectroscopy to demonstrate the mechanism of the luminescence of ONs.