Facile Size-Controlled Synthesis of Fluorescent Carbon Nanoparticles with Size-Independent Optical Properties

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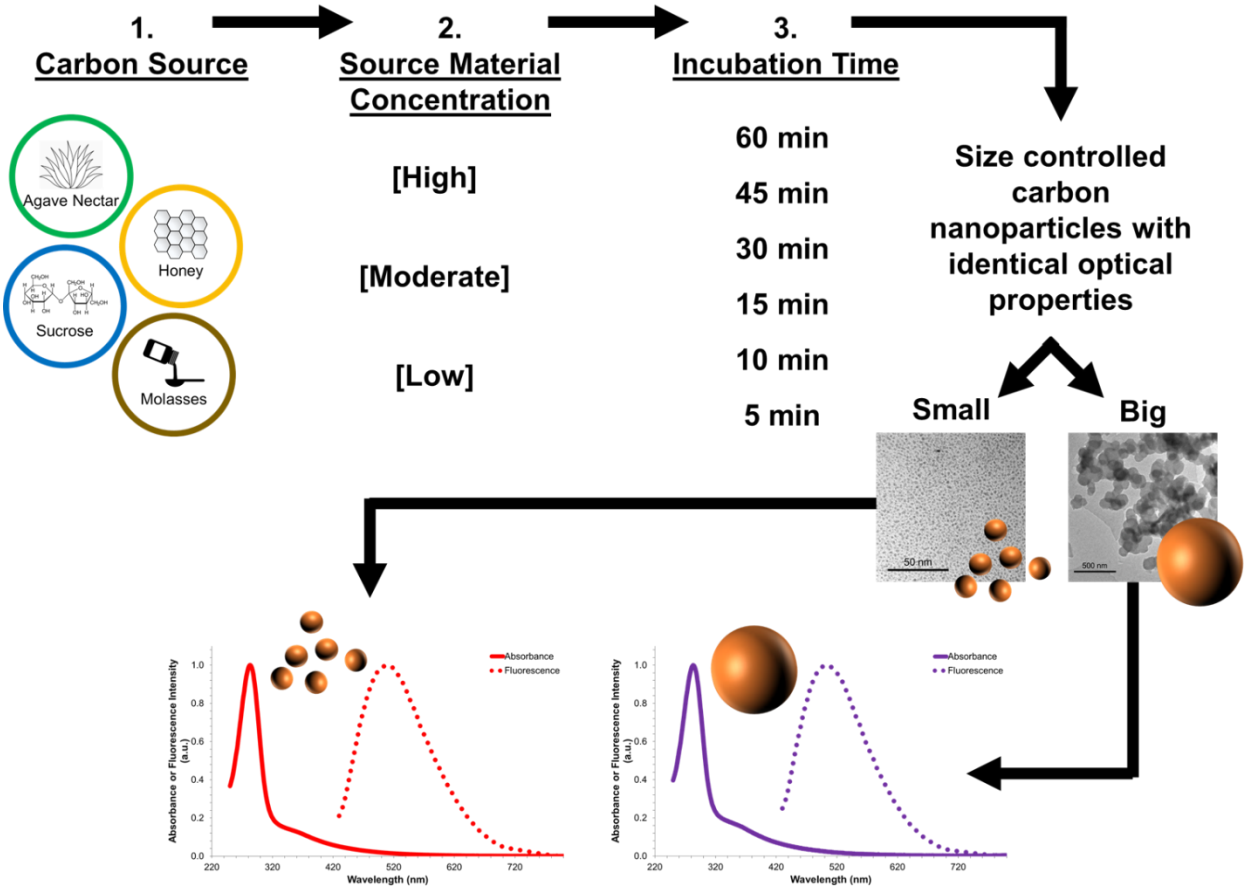

In these works, we demonstrate that the optical properties of fluorescent carbon nanoparticles are not size-dependent. Fluorescent carbon nanoparticles with hydrodynamic diameters ranging from 10 – 500 nm were prepared through variations of sugar source, concentration of agave (as a sugar source) and incubation time. Through comparisons made between these nanoparticles, we found no change in the local absorbance maxima and refractive index, with < 5 nm shifting in fluorescence maxima location. Because we were unable to observe significant changes in optical properties throughout a > 500 nm change in nanoparticle size, we can infer that the optical properties of fluorescent carbon nanoparticles are largely size-independent.