Hibiscus sabdariffa: A Functional Green Reducing Agent to Synthesize Metal Nanoparticles for their Corresponding Application and Nano-Characterization

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The investigation tested whether Hibiscus sabdariffa, a green reducing agent, would successfully reduce the metals of: Au, Ag, and Ce into nanoparticles. Based on our literature review "Nanoparticles green synthesis by Hibiscus Sabdariffa flower extract: Main physical properties," we chose Hibiscus sabdariffa as our green reducing agent due to its previous success in reducing Cerium Oxide and ecofriendly characteristics. When metal nanoparticles are reduced with environmental friendly agents, their disposal is facilitated. The use of the UV-Vis Spectrometry showed the results of gold peaking at 550 nanometers , silver at 410 nanometers, and cerium at 450 nanometers thus proving their reduction.The metal nanoparticle's morphology would determine their application. Through the use of the Field Emission Scanning Electron Microscopy, the shapes recorded included: Au spherical and diamond shaped- utilizing only the spheres, Ag spherical shaped, and Ce rod-shaped.The size was obtained by the use of the Transmission Electron Microscopy which recorded sizes in nanometers (nm) of: 20 nm for Ag, 30-65 nm for Au, and 33.6 nm for Ce. The nanoparticles covered a large surface area and distinctive boundaries.The morphology of the nanoparticle's indicated that the metal nanoparticle's application leans towards medical uses such as assisting to attach anticancer florescent agents on antibodies.

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