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Studies on optical properties of greenly synthesized cobalt oxide nanoparticles

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The nanoparticle counterparts of cobalt oxide are found to have favorable magnetic, optical, light emission, charge transfer and electrochemical properties. The study elaborates optical properties of greenly synthesized nanoparticles using endophytic fungus *A. nidulans* that examines the ability of the nanocolloidal solution to convert light energy into thermal energy, which is a yardstick for solar energy application. An attempt has been made to compare the optical properties of the nanoparticles using experimental values and theoretical predictions. Optical transmittance of the nanoparticles obtained was higher than 65% in 550-850 nm containing visible spectrum and the experimental results were in accordance with the predictive datum. The absorption coefficient peak observed is close to the predictive value and is present in the visible region of the light. In addition, there was an excellent agreement between theoretical and experimental results in extinction coefficient and refractive index. Based on the findings, it can be contemplated that green synthesized cobalt oxide nanoparticles can be probable contenders for solar energy harvesting and photo voltaic applications.

Biography

Ajuy Sundar Vijayanandan is currently pursuing his PhD at the Department of Chemical Engineering, National Institute of Technology Karnataka, India.

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