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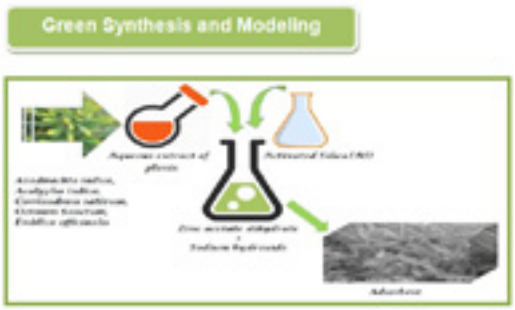
Green synthesis and modeling of zinc oxide nanoparticles from *Corriandram sativum*

Gnanasangeetha D
[1]PSNA College of Engineering and Technology, India
[2]Bharathiar University, India

Fabrication of benevolent zinc oxide nanoparticle entrenched on activated silica (ZnO-NPs-AS-Cs) without calcination by green synthesis method using aqueous leaf extract of Corriandrum sativum. The method involved the use of zinc acetate dihydrate ($Zn(CH_3COO)_2.2H_2O$) and sodium hydroxide (NaOH) as a precursor and phytoconstituents played manifold roles as promoter, stabilizer and template for synthesis of zinc oxide nanoparticle. Adsorption behavior of benign adsorbents was applied to Freundlich, Langmuir, Tempkin, and BET isotherm which afford the surface properties of the adsorbent and its affinity for adsorbate. Data correctly fits Langmuir isotherm than Freundlich, Tempkin and BET isotherm proving monolayer and homogenous surface of adsorption with R^2=0.968. Artificial neural network supports the linearity of the kinetic plots fitting pseudo-second order model with R^2=0.732 obeying chemisorption.



Biography

Gnanasangeetha D is currently pursuing her Doctoral studies on “Green Synthesis and Water Treatment” from one of the top most universities named Bharathiar University, Coimbatore, Tamil Nadu, India. She has knowledge about applying characterization techniques like XRD, SEM, TEM, PSA FT-IR and UV. Her research interest is modeling of zinc oxide nanoparticle embedded in activated silica for water remediation of arsenic (III) ions from herbal plants. Her quest for knowledge on Chemistry made her to participate in many Faculty Development Programmes and presented relevant papers in international conferences. A profound treatise on the subject matter makes her to publish 21 papers which were Scopus and Thomson Reuters indexed with 108 citations in Google scholar, h-index 4 and i10-index 3

sangithprakash@yahoo.co.in
sarala_dr@yahoo.in

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