

Influence of green surfactant on particle size and optical properties of hematite nanoparticles (α -Fe₂O₃)

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Abstract

As an n-type semiconductor, hematite (α -Fe₂O₃) has attracted a great deal of attention from researchers in different fields because of its nontoxicity, low cost, high stability under ambient conditions, and multiple functions. It has been intensively investigated for different applications such as lithium batteries [1, 2], sensors [3], catalysts, [4] pigments [5] and so on.

In this work, hematite nanoparticles are prepared by a simple green method at low temperature (polyol) using Fe(NO₃)₃·6H₂O as a reagent (0.6M), olive leaves extraction as a surfactant and distilled water as a solvent. In order to understand the influence of the extract solution of olive leaves, α -Fe₂O₃ powders has been characterized by XRD Pattern, UV-Visible spectroscopy and FTIR measurements and SEM. The variation of the extract olive leaves concentration reveals a decrease of the particle size and an enhancement of the optical properties of these nanoparticles.

References

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