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The fabrication and characterization of copper phosphate nanoparticles

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Copper acetate has been subjected to phosphoric acid treatment, and copper phosphate nanoparticles have been synthesized by the chemical co-precipitation approach. The method seeks to synthesize copper phosphate in the most uncomplicated manner of dimensions of nanoparticles. Different characterization approaches have been utilized to identify the synthesized material, revealing the information it may provide or the materials for which it is intended. X-ray diffraction, Raman spectroscopy, UV-Visible spectroscopy, SEM and FT-IR have been utilized to analyze the synthesized nano particles. The stretching and bending frequencies of the sample's molecular functional groups have been examined using FT-IR spectra. When using XRD, the size of the copper phosphate nanoparticles has been identified to be 57.74 nm. The resultant product copper (II) phosphate has well-crystallized particles, as clear in the SEM image. The unique electronic excitation states of copper (II) phosphate are detected *via* the ultraviolet spectra. The UV-Vis spectrum notifies the distinct electronic excitation states of copper (II) phosphate. The distribution of copper (II) phosphate nanoparticles is suitable, as demonstrated by the linear regression analysis. The Raman spectra peaks attest to the existence of copper phosphate.

Keywords: Copper Phosphate, XRD, IR, SEM