SYNTHESIS AND CHARACTERIZATION OF PHASE PURE FESE2 NANOPARTICLES AND ITS APPLICATION IN PHOTOCATALYSIS

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FeS2 in pyrite phase holds great promise for clean energy technologies owing to its environmental compatibility and high resistance towards photo corrosion. In the present work we developed phase pure FeS2 nanocrystals by hydrothermal method using FeSO4 as a precursor of Fe and Na2S2O3 as a source of sulfur (S) using water as the only solvent. The structural studies showed the formation of phase pure FeS2 which was further confirmed by Raman spectrum. Morphological characterization by scanning electron microscopy (SEM) showed the formation of compact rod like structure. The estimated band gap energy estimated was of 1.7 eV which is higher than the bulk FeS2 (0.9 eV). The photocatalytic activity of FeS2 was tested by following the degradation of methylene blue (MB) under visible light.