ABSRACT:

Nano chemistry is the new era of discoveries in the field of material sciences for synthesizing Nano sized materials having enhanced properties which make them plausible for certain biological and industrial applications. Hematite nanoparticles were synthesized by sol-gel and co-precipitation techniques of synthesis. Characterization was done by using various characterization techniques such as UV analysis, FTIR analysis, Raman Spectroscopy, XRD studies, Scanning Electron Microscopy and Transmission Electron Microscopy. These are used for confirmation of Hematite nanoparticles being synthesized, their purity and structural and surface morphology determination. Certain biological and industrial applications were also studied.

Key words: Hematite nanoparticles, Morphology, Acid Mine Drainage Treatment, Double shelled hollow spheres, Sensor Response.