



ABSTRACT

Sonochemical or Sonolysis is an appropriate synthesis method for the production of iron oxide nanoparticles. Ferric chloride($\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$) was used to synthesis iron oxide nanoparticles by Sonolysis. The synthesized nanoparticles were synthesized by following characterization techniques such as FTIR, UV-Visible analysis, size analysis and SEM. The analysis obtained from the UV-Visible confirms the iron oxide nanoparticles formation and it gives sharp peak at 426nm in spectra. The size analyzer revealed the size of nanoparticles in range between 50 to 80 nm. SEM analysis confirms the spherical shape of nanoparticles. The synthesized nanoparticles were also employed for the removal of arsenic from water as novel adsorbent. The effect of Change in pH, contact time, temperature and adsorbent dose was investigated on the adsorption process and it effectively remove arsenic from water.