IRON OXIDE NANOPARTICLES: SYNTHESIS AND SUPPORTMENT ON ACTIVATED CARBON APPLIED TO ARSENIC REMOVAL FROM SPRING WATERS.

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A practical and low-cost method has been employed for the synthesis of iron oxide nanoparticles. Galvanized iron was used as a precursor for the nanoparticles. The precursor was introduced into an oxidizing solution, obtaining iron oxide particles which were then characterized by TEM, SEM and XRD, revealing amorphous nanometric-sized and well distributed particles. The iron oxide nanoparticles were then supported on activated carbon, resulting in a composite with a good distribution of particles on carbon surface. Finally, the composite was used in the removal of arsenic from spring waters, obtaining a decrement of 10% from the original arsenic concentration.

The concentration of iron oxide nanoparticles respect to activated carbon must be optimized in order to obtain a major arsenic removal from the spring waters, according with the maximum limit allowed by the mexican regulation (NOM-250-SSA1-2014).

Keywords: iron oxide nanoparticles, arsenic removal, composite

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