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Removal of Iron (II) from Wastewater in Oil Field Using 3-(P-Methyl) Phenyl-5-Thionyl-1,2,4-Triazoline Assembled on Silver Nanoparticles

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Abstract : In this work we prepared 3-(p-methyl) phenyl-5-thionyl-1,2,4-triazoline (C1). The nanostructure of the prepared C1 compound was fabricated by assembling on silver nanoparticles. The UV and TEM analyses confirm the assembling of C1 compound on silver nanoparticles. The effect of C1 compound on the removal of Iron (II) from Iron contaminated samples and industrial wastewater samples (produced water from oil processing facility) were studied before and after their assembling on silver nanoparticles. The removal of Iron was studied at different concentrations of FeSO4 solution (5, 14 and 39 mg/l) and field sample concentration (661 mg/l). In addition, the removal of Iron (II) was investigated at different times. The Prepared compound and its nanostructure with AgNPs show highly efficient in removing the Iron ions. Quantum chemical descriptors using DFT was discussed. The output of the study pronounces that the C1 molecule can act as chelating agent for Iron (II).

Keywords : triazole derivatives, silver nanoparticles, iron (II), oil field
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