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Detection of Hg ions in contaminated water by optical sensor based on polymeric nanocomposite

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The A novel colorimetric sensor based on TiO2/ poly(acrylamide-co-methylen bis acrylamideco-dithizone) (TiO2/poly(Am-co-MBA-co- DTz)) nanocomposite was synthesized by surface modification of a synthesized TiO2 NPs using vinylic linker, which created a reactive vinyl groups for the polymerization of the Am, MBA and modified dithizone on the surface of modified TiO2 NPs. The prepared polymeric nanocomposite were characterized by Fourier transform infrared spectroscopy (FT-IR), scanning electron microscopy (SEM), thermogravimetric analysis (TGA)

and X-ray powder diffraction (XRD). A fast, selective and inexpensive screening-test for recognizing Hg ions contamination in aqueous solution is described to avoid time-consuming and costly determination using atomic absorption spectrometry. This nanostructured composite with polymeric shell contain dithizone was developed as a sensitive and selective sensor for adsorption and detection of mercury ions from aqueous solution at optimized condition.

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