



Sensitive Visual Colorimetric Sensor Based on Polymeric Nanocomposite for Detection of Toxic Mercury and Lead Ions from Aqueous Solutions

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Abstract:

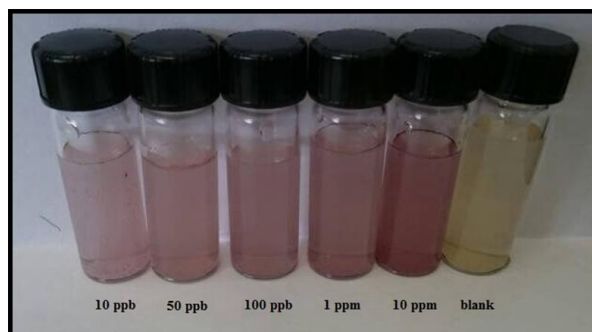
Mercury and lead ions are potentially toxic environmental pollutants. Therefore the quick determination of mercury and lead ions is becoming increasingly important in environmental samples. Contamination of Hg(II) and Pb(II) can result kidney toxicity, neurological damage, chromosome breakage, paralysis and birth defects.

Compare with other reported sensors, our works provided the highly sensitive, selective, on-time and in situ detection of toxic metal ions with convenient reversibility. In addition, the naked-eye colorimetric recognition of Pb(II) and Hg(II) ions developed easy-to-use and portable sensor, without need to the expensive and sophisticated instruments, for determination of these ions in aqueous media. We are interested in colorimetric sensors based on polymeric nanocomposite. Very recently we disclosed the superiority of polymeric nanocomposite@ligands as an efficient sensor for Hg and Pb ions detection.

The naked-eye detection of Hg and Pb ions in aqueous media using new colorimetric sensor is achieved at low concentration (about 10 ppb) in a very short time.

In our last research for the first time dithizone immobilized onto TiO₂/poly (t-BuA) nanocomposite and applied via covalent binding and attempted via amidation reaction between ligand and tert-butyl acrylate.

Keywords: Environmental pollutants; Colorimetric Sensor; Determination ; Polymeric nanocomposite; Hg and Pb ions; Aqueous media



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