

## Characterization and Detection of Cadmium Ion Using Modification Calixarene with Multiwalled Carbon Nanotubes

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**Abstract :** Water contamination by toxic compound is one of the serious environmental problems today. These toxic compounds mostly originated from industrial effluents, agriculture, natural sources and human waste. These study are focused on modification of multiwalled carbon nanotube (MWCNTs) with nanoparticle of calixarene and explore the possibility of using this nanocomposites for the remediation of cadmium in water. The nanocomposites were prepared by dissolving calixarene in chloroform solution as solvent, followed by additional multiwalled carbon nanotube (MWCNTs) then sonication process for 3 hour and fabricated the nanocomposites on substrate by spin coating method. Finally, the nanocomposites were tested on cadmium ion (10 mg/ml). The morphology of nanocomposites was investigated by FESEM showing the formation of calixarene on the outer walls of carbon nanotube and cadmium ion also clearly seen from the micrograph. This formation was supported by using energy dispersive x-ray (EDX). The presence of cadmium ions in the films, leads to some changes in the surface potential and Fourier Transform Infrared spectroscopy (FTIR). This nanocomposites have potential for development of sensor for pollutant monitoring and nanoelectronics devices applications

**Keywords :** calixarene, multiwalled carbon nanotubes, cadmium, surface potential

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