

PREPARATION OF GRAPHENE OXIDE/TITANIUM DIOXIDE NANOCOMPOSITES
AND
ITS ADSORPTION FOR AS(III) IONS

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Arsenic is a naturally occurring element, which is found in both in natural waters and industrial waters. Graphene oxide/Titanium dioxide (GO/TiO₂) nanocomposites were prepared by using hydrothermal technique, their structure was observed and their adsorption performance for As(III) in water was evaluated. X-ray diffraction and Raman spectroscopy spectra confirmed the anatase structure of the TiO₂ nanoparticles. The adsorption system is mainly depended on the As(III) concentration and follows a pseudo second-order kinetic model. The initial adsorption was rapid and reached equilibrium after 20 min. The overall equilibrium data were well fitted to Langmuir model for the nanocomposites. The adsorption results indicated that the GO/TiO₂ nanocomposites can be a good adsorbent material to treat water that contaminated with As(III).

Keywords: Arsenic; Graphene Oxide; Titanium Dioxide; Adsorption