عنوان مقاله:

Evaluation of modified montmorillonite clay with magnetite nanoparticles

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نویسندگان:

Reza Laksian - *Soil Science Department, Faculty of Agriculture, University of Birjand, Iran*

Mahboobe Rezaei - *Soil Science Department, Faculty of Agriculture, University of Birjand, Iran*

خلاصه مقاله:

Iron oxide nanoparticles play an important role in decontamination of a large number of environmental pollutants, such as solvents, chlorinated pesticides, and so on. The magnetic and catalytic properties of iron oxide nanoparticles are widely used. The main problem of iron nanoparticles is instability and their high tendency to agglomerate. In order to solve this problem, a modified montmorillonite clay with magnetite nanoparticles was prepared. The properties of prepared clay were investigated by X-ray diffraction and scanning electron microscopy. The results of X-ray diffraction showed that powerful peak of the first order (d001) tended to smaller angles of 2θ in modified clays with magnetite nanoparticles compared to the primary cluster of montmorillonites, so the gap between the layers and as a result, surface of prepared nanocomposite is increased. In scanning electron microscopy imagesof modified montmorillonite clay with magnetite nanoparticles was observed that magnetite nanoparticles are dispersed in the surface and between layers of clay and their aggregation was very reduced, which led to an increase in the surface of the nanocomposite. A significant increase in the surface of this nanocomposite can increase its ability to remove pollutants from the environment.

کلمات کلیدی:

Montmorillonite, Magnetite nanoparticles, X-ray diffraction, Scanning Electron Microscope