

عنوان مقاله:

Novel magnetic biosorbent based on clicking alkyne-functionalized glucose onto azidemodified graphene oxide

محل انتشار:

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خلاصه مقاله:

Magnetic glucose-functionalized graphene nanosheets (GNS) were prepared and their application in the removal of methylene blue was investigated. First, Water-soluble GNS were fabricated via functionalization of graphene oxide (GO) glucose on the basal plane using Click Reaction. To graft saccharides onto the plane and edges of GO, two approaches were used. In the first approach, GO was reacted with sodium azide to introduce azide groups on the plane. Then, it was treated with alkyne-modified glucose. In the next approach, we attached 1, 3-diazideprop-2-ol onto the edges of GO and it was subsequently clicked with alkyne-glucose. Sugar-grafted GO sheets were reduced by sodium ascorbate during click-coupling reaction which is an advantage for this reaction. Finally to prepare magnetic nanocomposites, Fe₃O₄ nanoparticles were deposited on sweet GNS using co-precipitation. The resulted the magnetic biosorbents responded quickly to an external magnetic field and exhibited efficient adsorption towards methylene blue.

کلمات کلیدی:

Sweet Graphene Nanosheets; Magnetic Biosorbent; Click Reaction; Dye Removal

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