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Synthesis, Characterization and Heavy Metal Adsorption of Graphene Gels for the Wastewater Treatment

Substantial metal contamination, particularly water overwhelming metal contamination, has been a typical worry for the world. It is outstanding that bioaccumulation of the substantial metal particles in the living cells brings genuine antagonistic wellbeing impacts on the human and creature organ capacities. There is proof that substantial metal particles can cause different progressive diseases (i.e. lung issues, bone injuries, etc.) [1].
Since 1800, a few urban wastewater treatment methodologies and advances have been executed to reduce the water contamination. Graphene oxide (GO) is one of the latest technologies for the wastewater treatment because it has different physio-chemical properties, which served as a selective adsorbent for adsorbing different water contaminants [2, 3]. In particular, the graphene based materials in different forms of gel will be used to remove the heavy metal ions in wastewater treatment, due to their large surface area, flexibility in number of activated functional groups, reasonable adsorption behavior in water, and excellent removal efficiency of heavy metals. Their relatively easy preparation method and biocompatibility, will demonstrate the possibility of applying the graphene based gels as an excellent candidate for preparing water treatment agents.
From our proposed batch experiments, the influences of different parameters on the maximum adsorption capacity of heavy metals and the adsorption kinetic models have been investigated. The adsorption mechanism on graphene active surfaces have being systematically elucidated. The outstanding adsorption performance of graphene gels for the removal of heavy metals is believed to be of their significant environmental applications.
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References

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