

Supporting Information

**Facile synthesis of magnetic zero-valent iron nanoflake-decorated graphene nanoplates as synergistic adsorbent and reductant for effective rhodamine B degradation**

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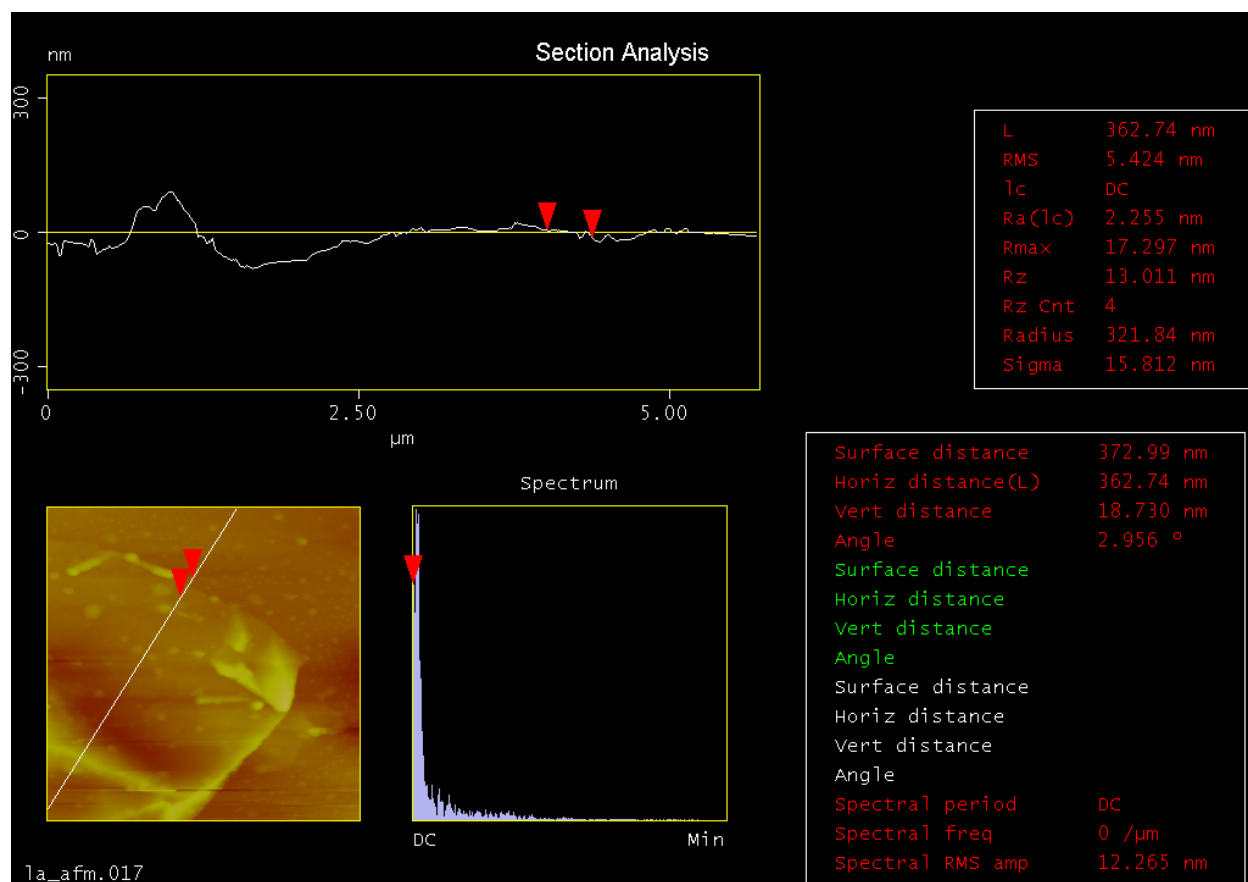
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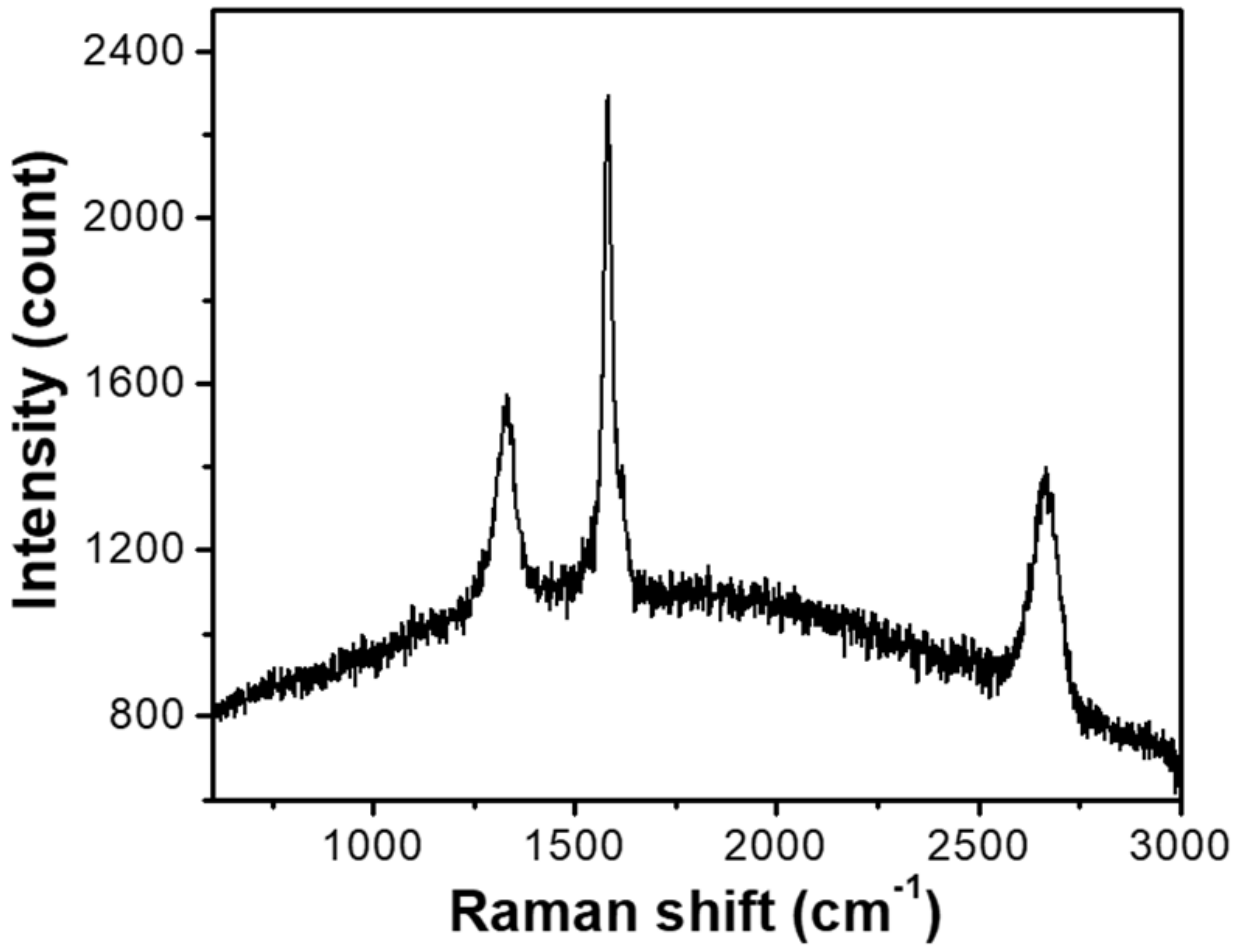
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This provides further information about the magnetic properties of the GNPs@ZVI composite.

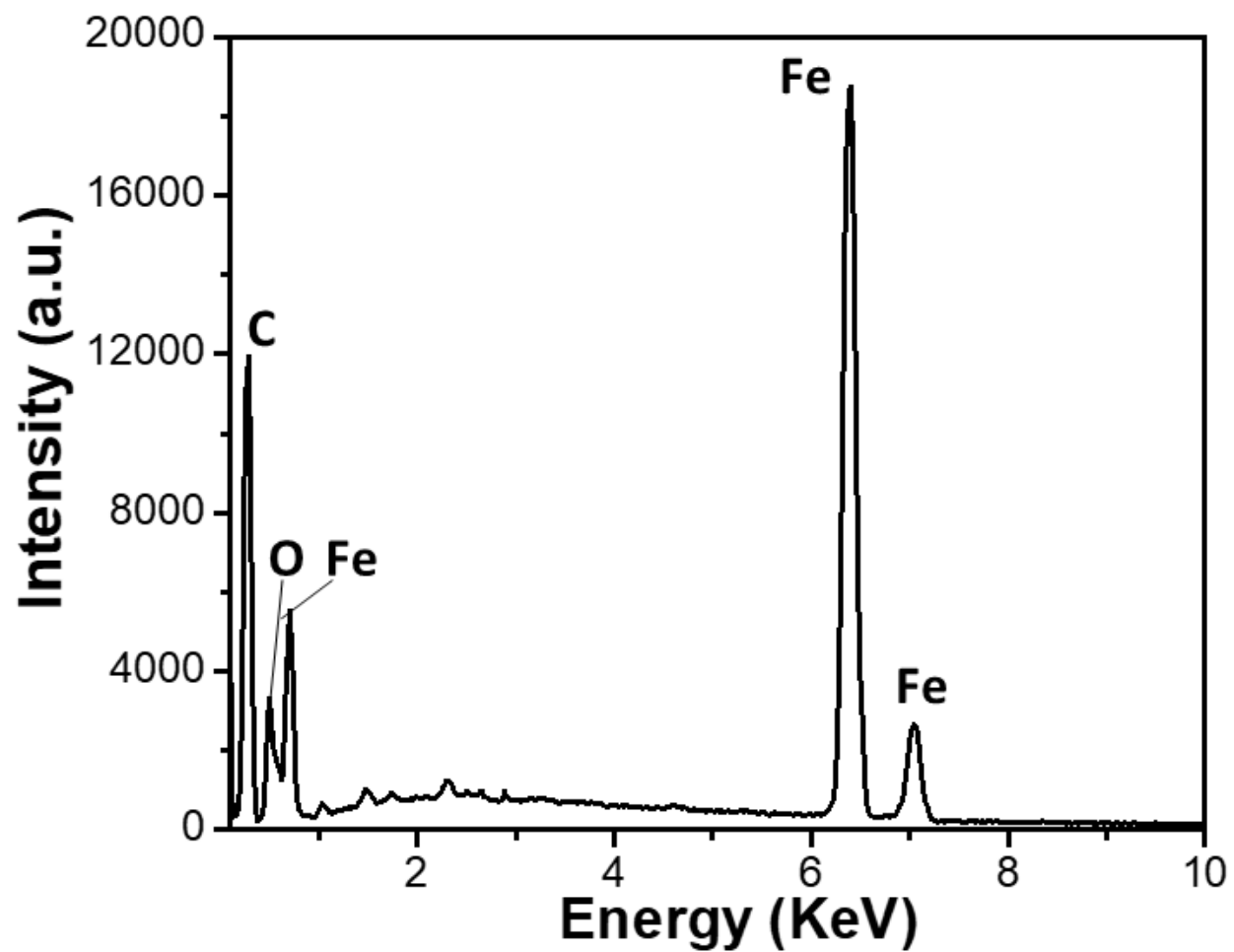
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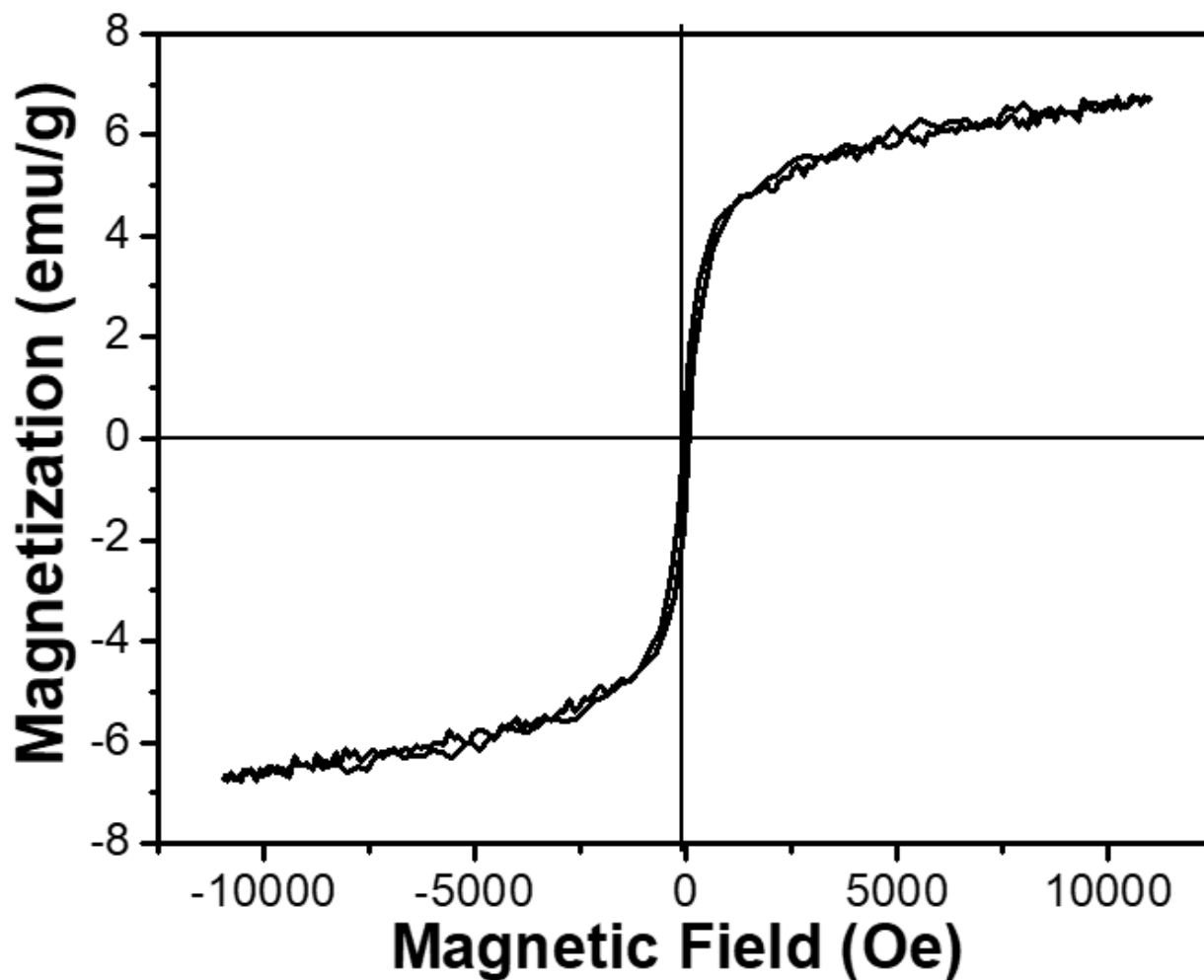
**Figure S1.** AFM images of graphene nanoplates



**Figure S2.** Raman spectrum of graphene nanoplates



**Figure S3.** EDX spectrum of graphene@ZVI nanoflakes composite



**Figure S4.** The magnetic properties of the ZVI nanoflakes-decorated graphene nanoplates composite.

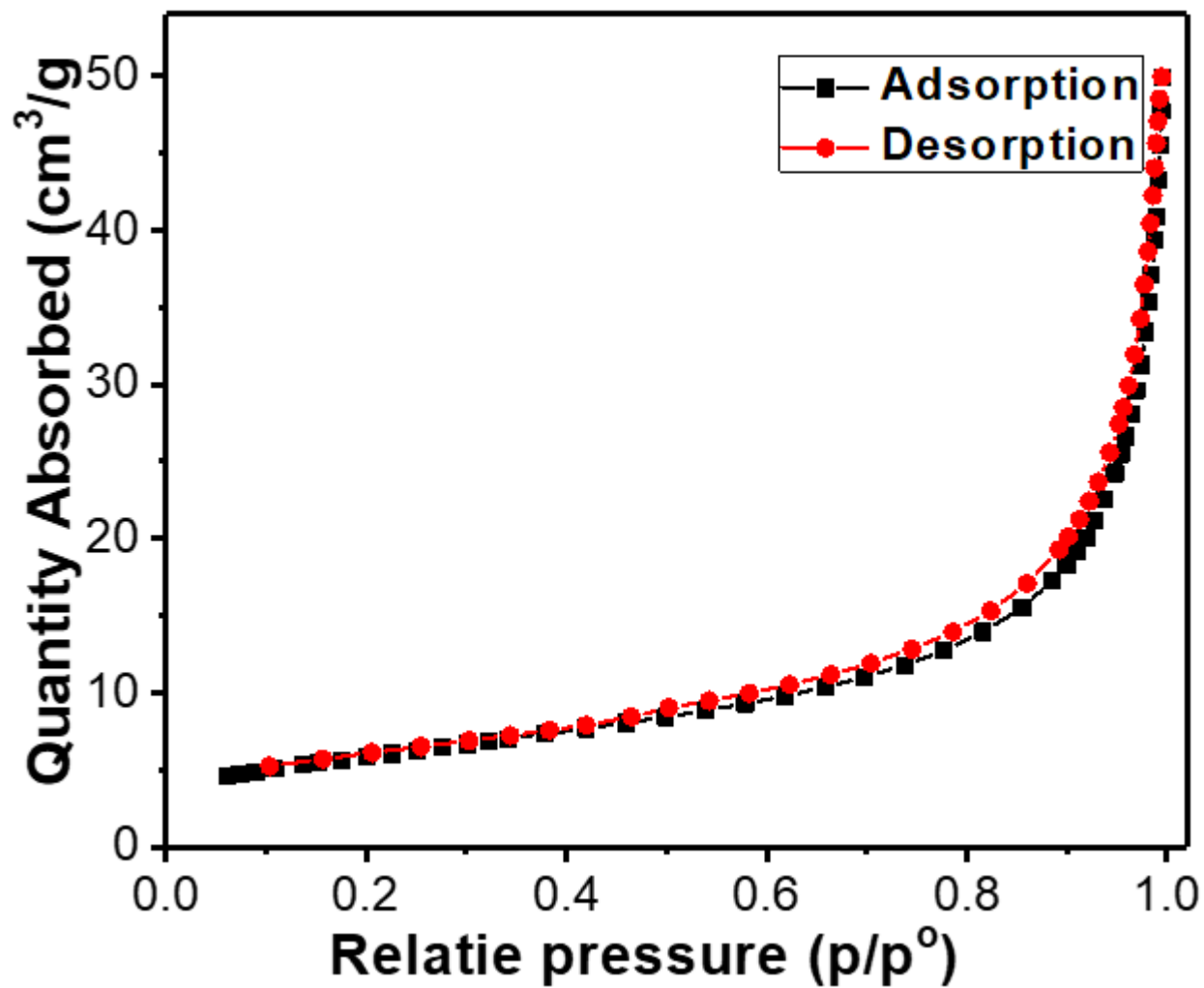


Figure S5. The N<sub>2</sub> adsorption and desorption curves of GNPs@fZVI nanocomposite.

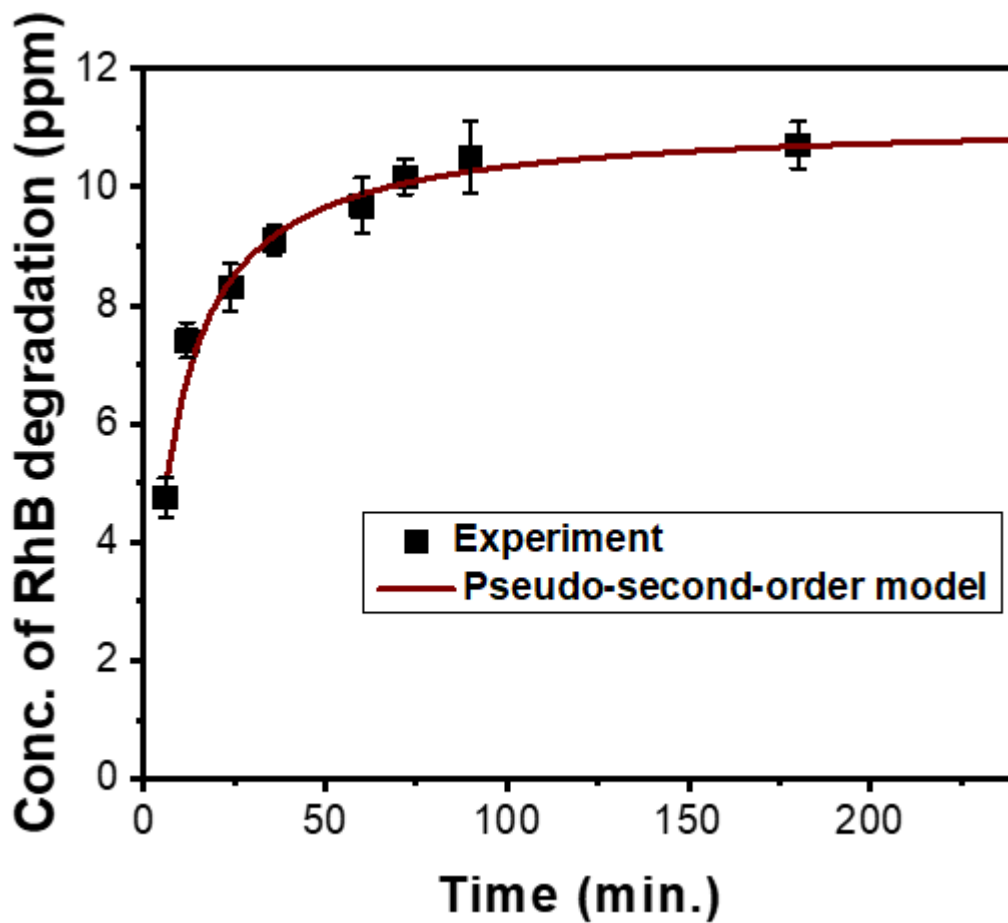
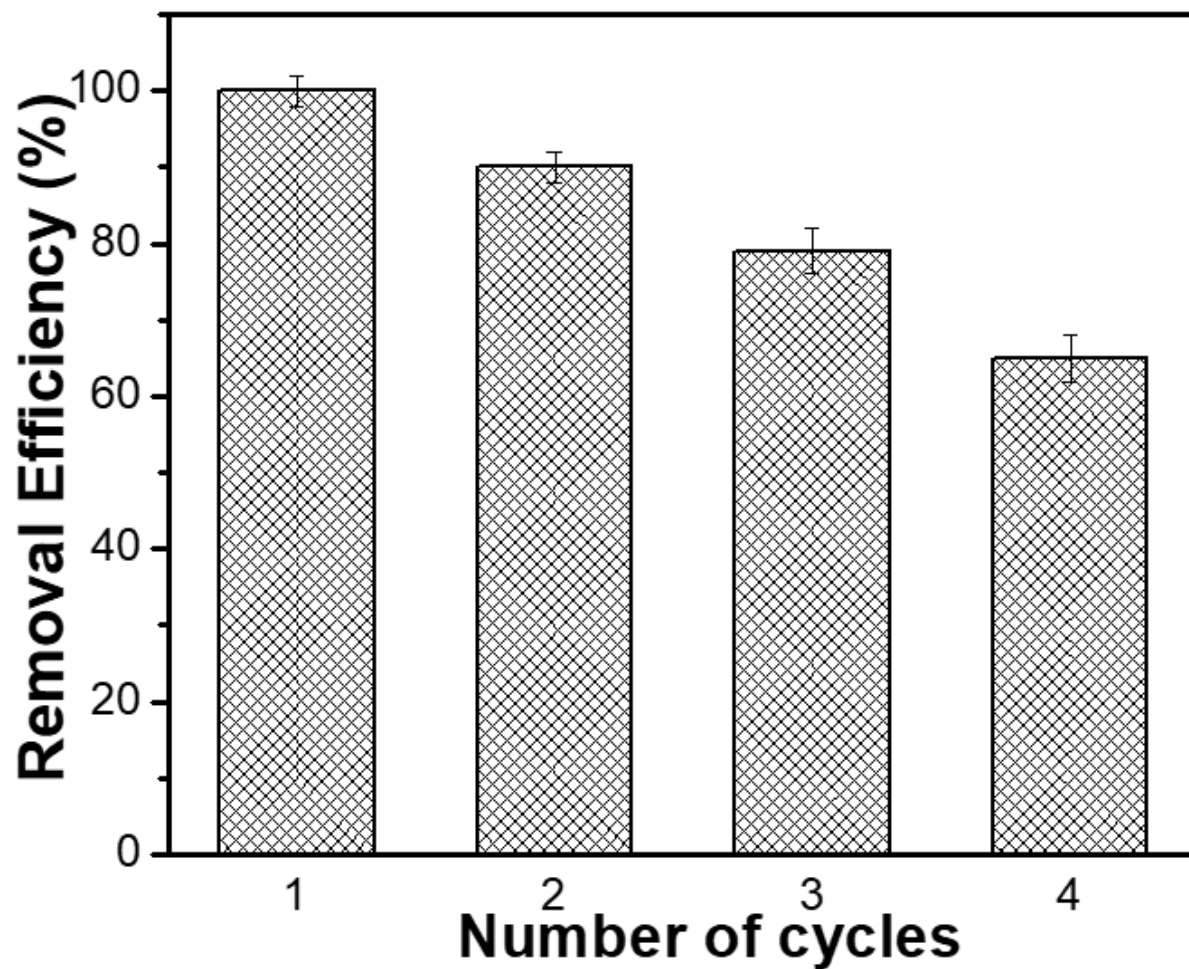
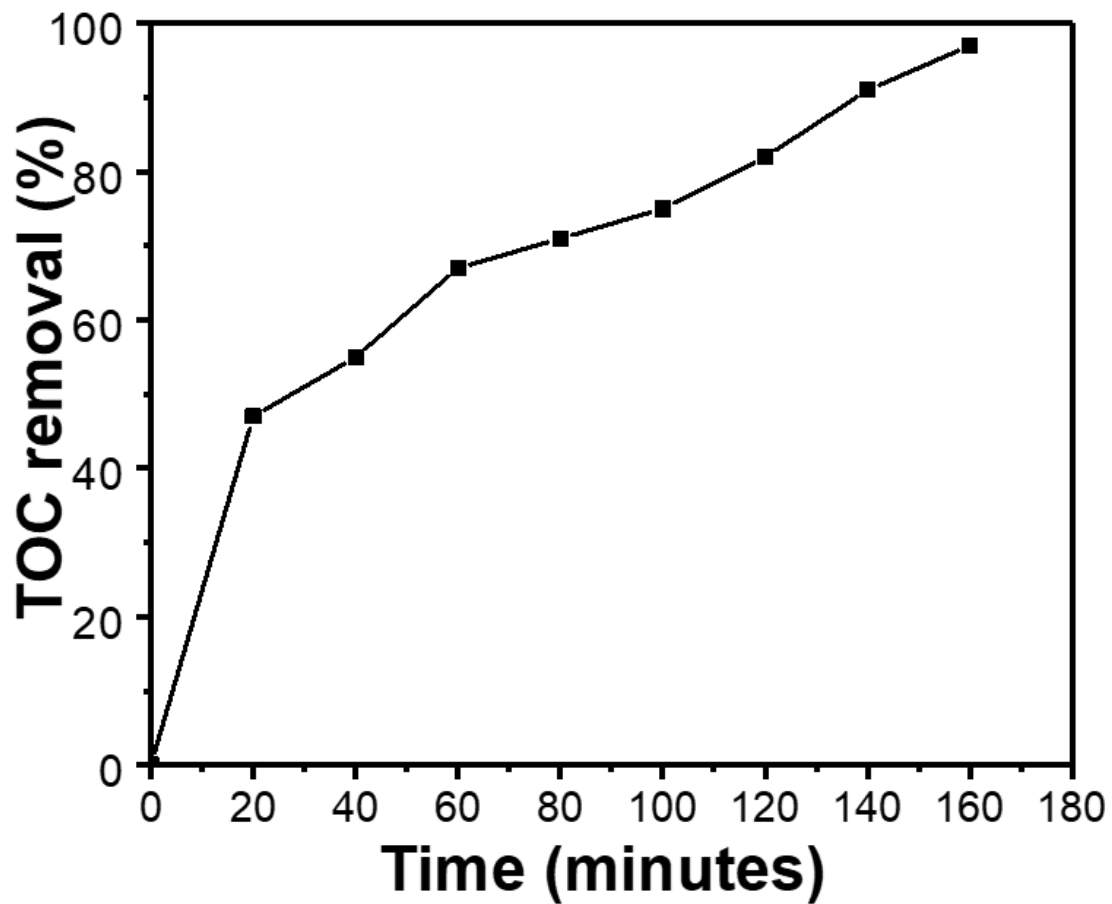


Figure S6. Kinetics model of simultaneous RhB degradation by GNPs@fZVI composite



**Figure S7.** Recyclability of GNPs@fZVI composite for RhB removal





**Figure S8.** Total organic carbon (TOC) removal during the degradation of RhB in the presence of GNPs@fZVI composite