Supporting Information:

**Facile preparation, high microwave absorption and microwave absorbing mechanism of RGO/Fe$_3$O$_4$ composites**

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Fig. S1 Schematic view of the procedure of the as-prepared RGO/Fe$_3$O$_4$ composites and TEM images of GO (a), RGO (b), RGO/Fe$_3$O$_4$-1 composite (c), RGO/Fe$_3$O$_4$-2 composite (d), RGO/Fe$_3$O$_4$-3 composite (e), Fe$_3$O$_4$ NPs (f,g).

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Fig. S2 The formation of the GO/Fe$_3$O$_4$ composite are described in the schematic below.

Fig. S3 Photograph of GO and RGO/Fe$_3$O$_4$-3 composite dispersed in water and the response to a magnet of RGO/Fe$_3$O$_4$-3 composite.

Fig. S4 The calculated reflection losses for Fe$_3$O$_4$ NPs with different thicknesses in the frequency range of 2-18 GHz.