Electronic supplementary information (ESI)

Ag–AgBr/TiO_2/RGO nanocomposite for visible–light photocatalytic degradation of penicillin G

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Synthesis of graphene oxide (GO)

Millipore Co. MilliQ (MQ) water with resistivity of 18.2 MΩ cm was used throughout the study unless otherwise stated. GO was synthesized via the modified Hummers method. [1] In a typical synthesis, 1.0 g of natural graphite (SP1, Bay Carbon Company, USA) and 0.5 g of $NaNO_3$ (99%, Sigma–Aldrich) were added into 23 mL of H_2SO_4 (98%, Sigma–Aldrich), followed by magnetic stirring for 1 h at <5 °C in an ice–water bath. Then, 3.0 g of $KMnO_4$ (99%, Sigma–Aldrich) was slowly introduced to the above suspension, followed by continuous magnetic stirring for another 1 h at <5 °C. Subsequently, the ice–water bath was replaced by an oil–bath. The suspension was gradually heated to 35 ± 1 °C and maintained at this temperature for 2 h. After that, 46 mL of MQ water was added slowly to the suspension, and the temperature was raised to 98 ± 1 °C and kept for 30 min. After the suspension was

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cooled to room temperature, 140 mL of MQ water and followed by 10 mL of H_2O_2 (30%, Sigma–Aldrich) were added to stop the reaction. Finally, the suspension was repeatedly centrifuged and washed with 5% HCl (37%, Sigma–Aldrich) and MQ water till neutral pH. The product was vacuum–freeze dried at –50 °C for one week to obtain GO powder.

1 W. S. Hummers and R. E. Offeman, *J. Am. Chem. Soc.*, 1958, **80**, 1339-1339.

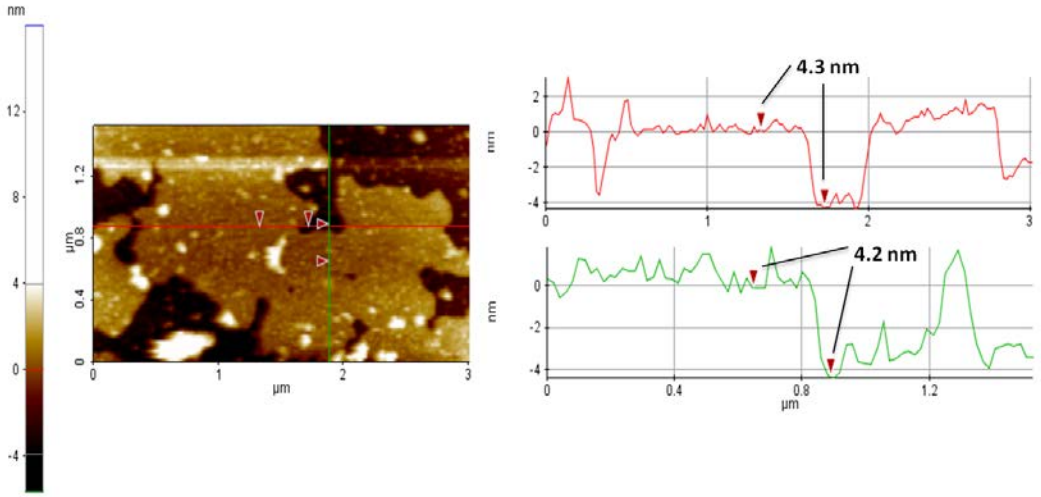

Fig. S1. AFM image of GO with height profiles taken in two different locations.