Electronic Supplementary Information

One-pot green synthesis of graphene oxide/gold nanocomposites as SERS substrates for malachite green detection

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Characterization of GO/AuNPs hybrids

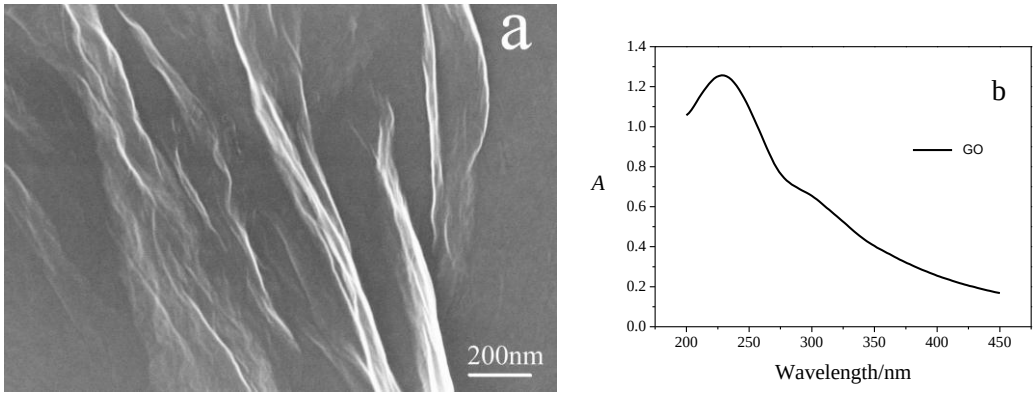

Fig. S1 Features of as-prepared GO. (a) Scanning electron microscopy image, (b) UV-vis absorption spectrum. Two absorption peaks at 228 nm and 300 nm, which attributed to the π-π* transition of carbon double bonds and n-π* transition of carbonyl groups respectively.[1]

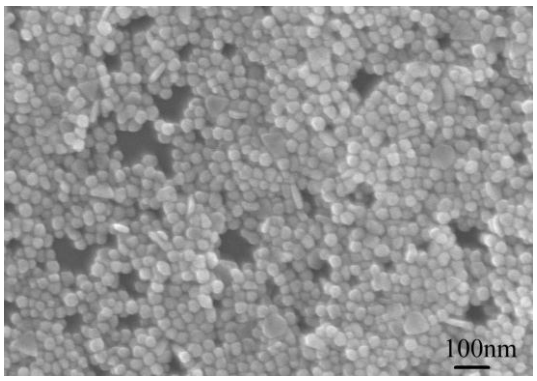

Fig. S2 Scanning electron microscopy of gold nanoparticles synthesized with the tyrosine as reducing agents in the pH 7.0 without GO.

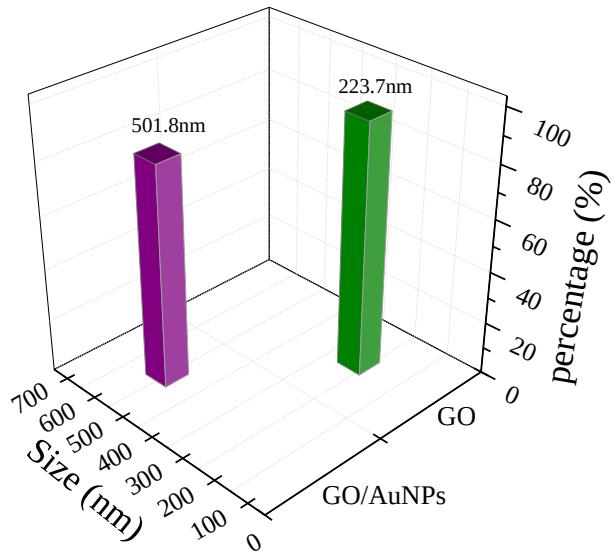

Fig. S3 DLS measurements of GO and GO/AuNPs hybrids in the aqueous solution. 95.8% pure GO had the main size distribution of 224 nm, while GO/AuNPs hybrids had main size distribution of 502 nm. The obvious change of size distribution suggested that the GO/AuNPs hybrids indeed formed in solution.

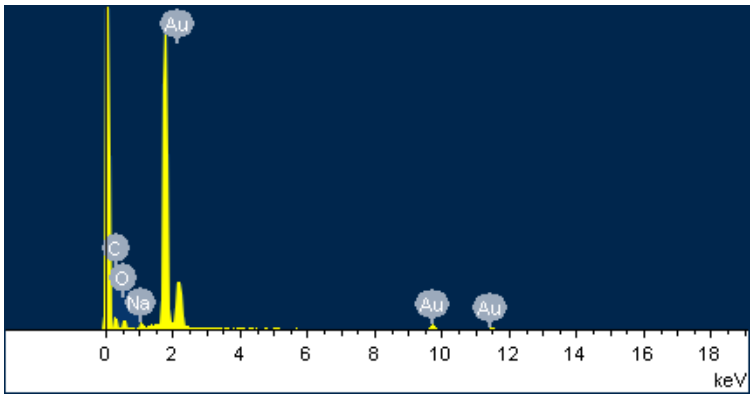

Fig. S4 Energy-dispersive X-ray spectrum analysis of GO/AuNPs hybrids.

REFERENCE

1. G.-h. Moon, H.-i. Kim, Y. Shinc and W. Choi, *RSC Adv*, 2012, **2**, 2205.