

Supplementary Information

Biodegradable Nanocomposite of ZnS(Mn) Quantum Dots Immobilized Graphene Oxide for Bioimaging Applications

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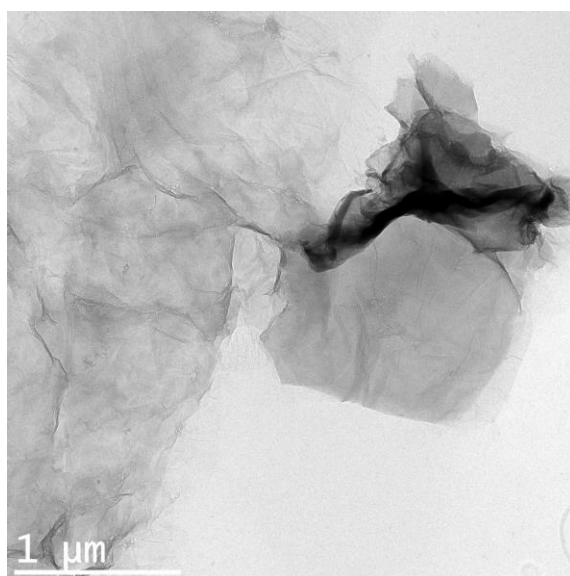


Figure S1. TEM image of exfoliated graphene oxide.

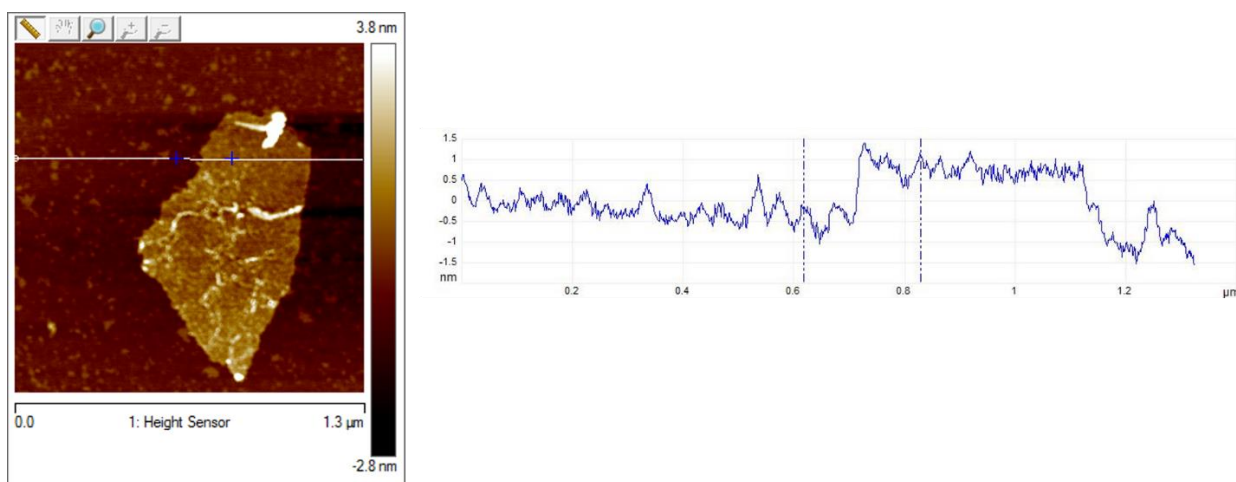


Figure S2. AFM image of exfoliated graphene oxide along with line profile thickness measurement.

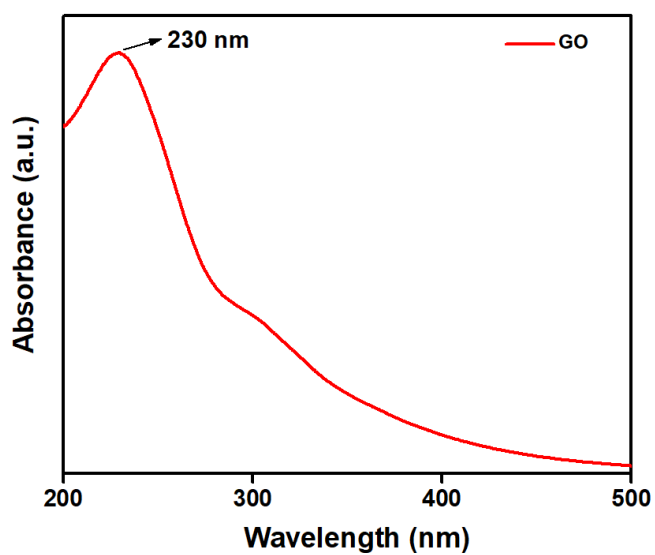


Figure S3. UV-visible spectrum of graphene oxide.

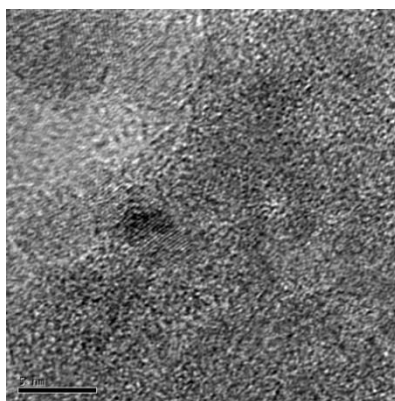


Figure S4. High-resolution TEM image of GO-ZnS(Mn) composite.

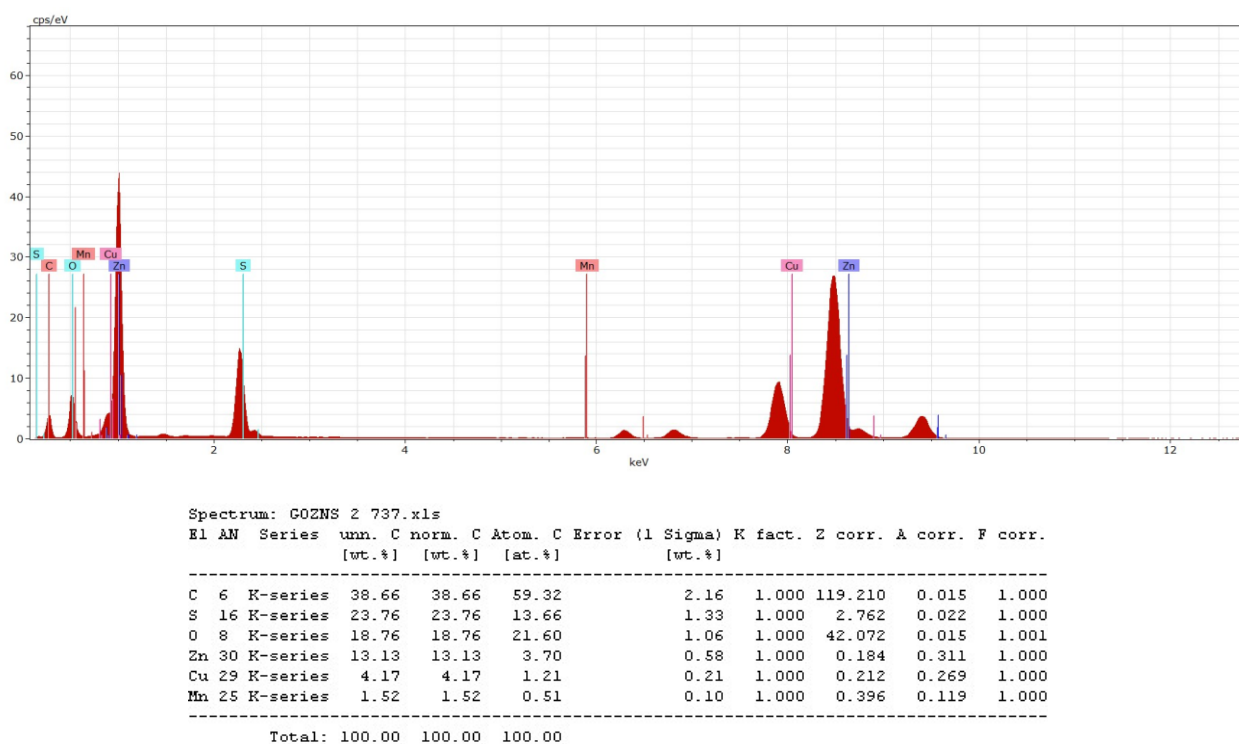


Figure S5: EDS spectrum of GO-ZnS(Mn) composite and the elemental composition shown in the table.

Synthesis of CdS Quantum Dots

CdS quantum dots were synthesized using the earlier report[1]. In brief, cadmium acetate dehydrates (0.006 M) solution was added to the freshly prepared sodium sulfide solution (0.06 M). The mixture was stirred at 50 °C for 15 min, followed by adding 0.4 mL of 2-Mercaptoethanol (capping agent) to regulate the particle size. The gradual appearance of green color confirmed the formation of CdS QDs. The resulting solution was filtered and washed with excess acetone and water.

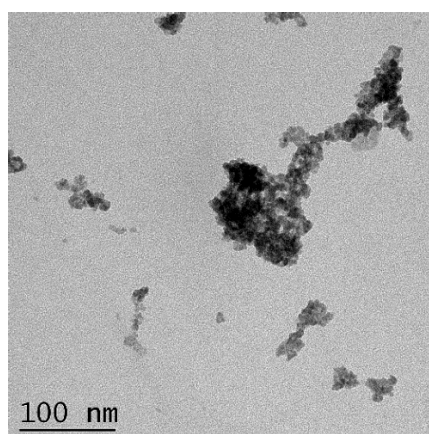


Figure S6. TEM image of CdS QDs

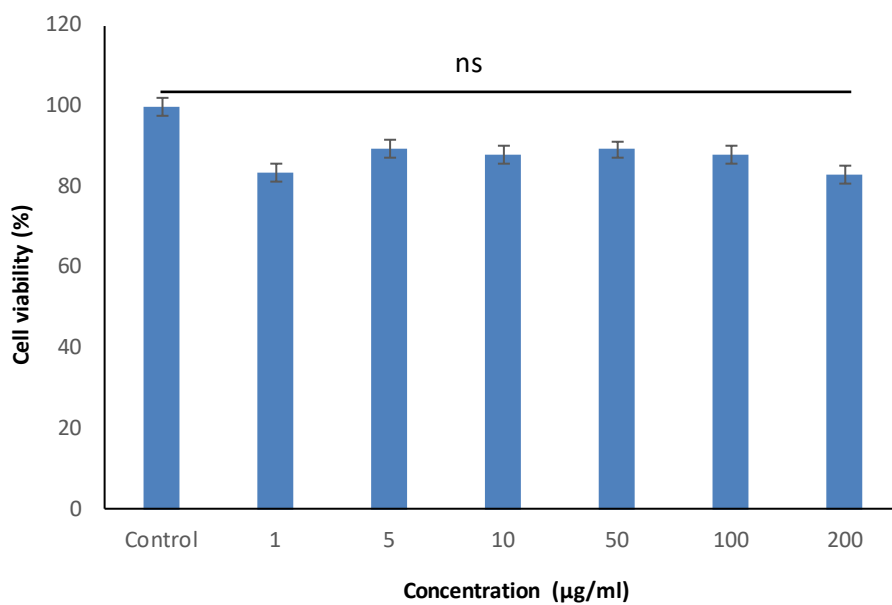


Figure S7. Cell viability assay of CdS QDs in HeLa cells for 48 h (the statistical analyses was performed using t-test in Microsoft Excel).

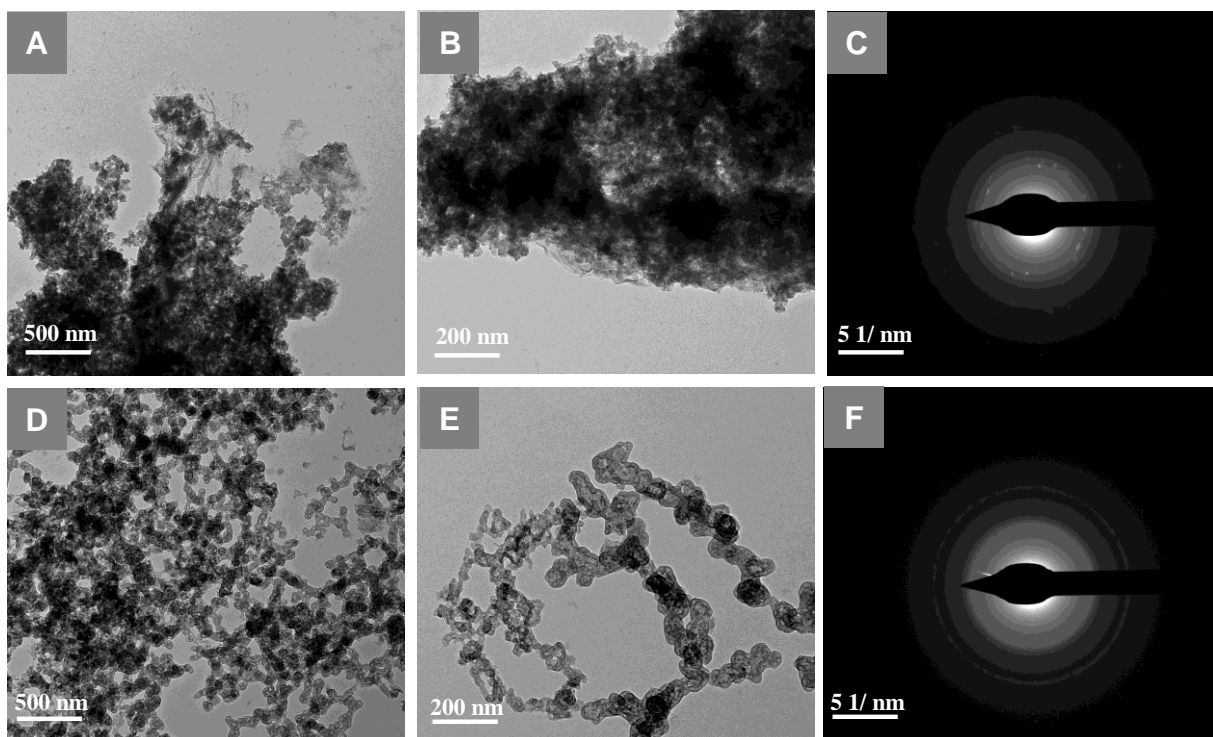


Figure S8: TEM images and SAED pattern of control samples: Images (A-B) correspond to GO-ZnS(Mn) in PBS alone for 15 h at different magnifications; and (C) SAED pattern and (D-F) ZnS(Mn) QDs alone in H₂O₂ for 15 h.

References:

1. Rahul, Singh S, Singh PK, Paul Sharma J, Kakroo S, Sonker R, et al. Encompassing environment synthesis, characterization and photovoltaic utilization of cadmium sulphide quantum dots. *Materials Today: Proceedings*. 2021; 34: 767-70.