

Supplementary Information

for

Exploration of the Potential Efficacy of Natural Resource Derived Blue Emitting Graphene Quantum Dots in Cancer Therapeutic Application

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Chemicals:

Bituminous coal (CDPCI) was utilized as received and crushed into powder (72 mesh) for synthesis purpose. HCl (Merck, India), HNO₃ (Merck, India), Oxone (Sigma-Aldrich, USA) and DMF (Merck, India) were utilized as received. Here, double distilled water was utilized for experimental work. For the preparation of Dulbecco's Modified Eagle's Medium (DMEM) media, penicillin and streptomycin were purchased from Sigma-Aldrich, USA. Fetal bovine serum (FBS) was procured from GIBCO/Invitrogen. 4',6-Diamidino-2-phenylindole dihydrochloride (DAPI) and 3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-tetrazolium bromide (MTT) reagent was purchased from Sigma-Aldrich, USA and Himedia, India respectively.

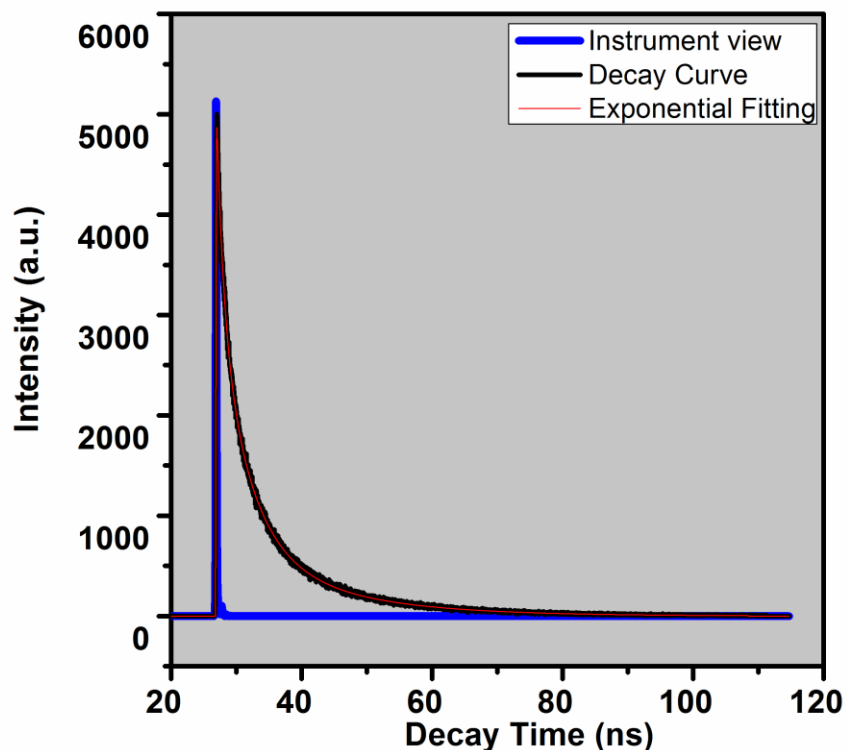


Fig. S1: TRPL decay profile of blue GQDs at room temperature.

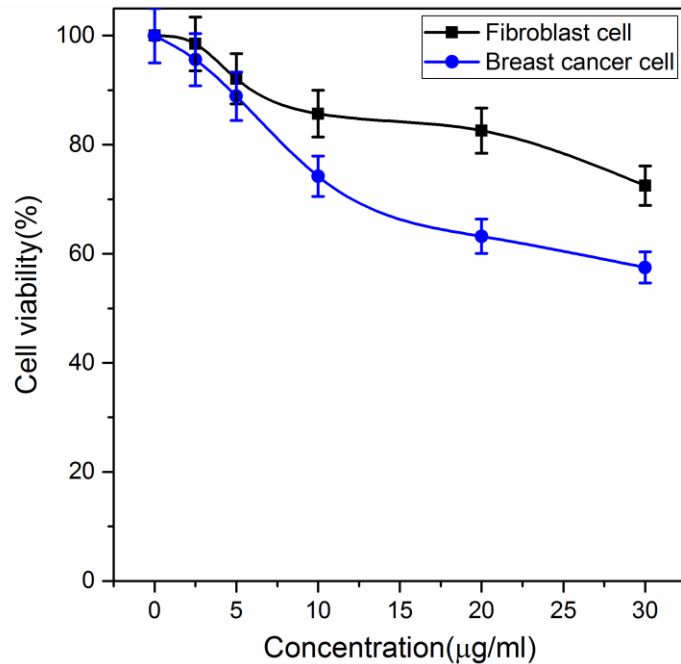


Fig. S2: Cell viability of fibroblast and breast cancer cell lines

Table S1: Comparison of GQDs Quantum Yield derived from coal

Sl. No.	References	Quantum Yield (Q.Y)
1	Methods of producing graphene quantum dots from coal and coke (Patent: WO2014179708A1)	5.35 %
2	Coal as an abundant source of graphene quantum dots (Nature Communications; 2013, 4, 2943, DOI: 10.1038/ncomms3943)	1.0 %
3	Graphene quantum dots, graphene oxide, carbon quantum dots and graphite nanocrystals in coals (Nanoscale, 2014, 6, 7410–7415)	1.8 %
4	Present Study	14.42 %