Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

PEGylated Graphene Oxide based Nanocomposite grafted Chitosan/Polyvinyl alcohol Nanofiber as an Advanced Antibacterial Wound Dressing

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Sample	Stress at Maximum Load Ultimated Tensile strength (UTS) (MPa)	Young's modulus (E) (MPa)	Elongation at break (Eb) (%)
CS/PVA blended nanofiber	**7.2**	**73.3**	**11**
PEGylated GO based composite CS/PVA nanofiber	**25**	**363.8**	**8**

Table S.1: The mechanical property explicitly, ultimate tensile strength, Young's modulus and elongation at break % investigation of alone CS/PVA blended nanofiber and effect of incorporation of PEGylated GO on the mechanical properties of GO composite CS/PVA nanofiber

	Ag (µg/mL) *E.coli*	Ag (µg/mL) *S. aureus*	CUR (µg/mL) *E.coli*	CUR (µg/mL) *S. aureus*
PEGylated GO-Ag NP composite nanofiber	**12.0**	**11.3**	**-**	**-**
PEGylated GO-Ag NP-CUR composite nanofiber	**8.2**	**7.94**	**45**	**38**
PEGylated GO-CUR composite nanofiber	**-**	**-**	**64**	**62**

Table S.2: Investigation of MIC values of Ag NP and CUR incorporated in various composite nanofibers.

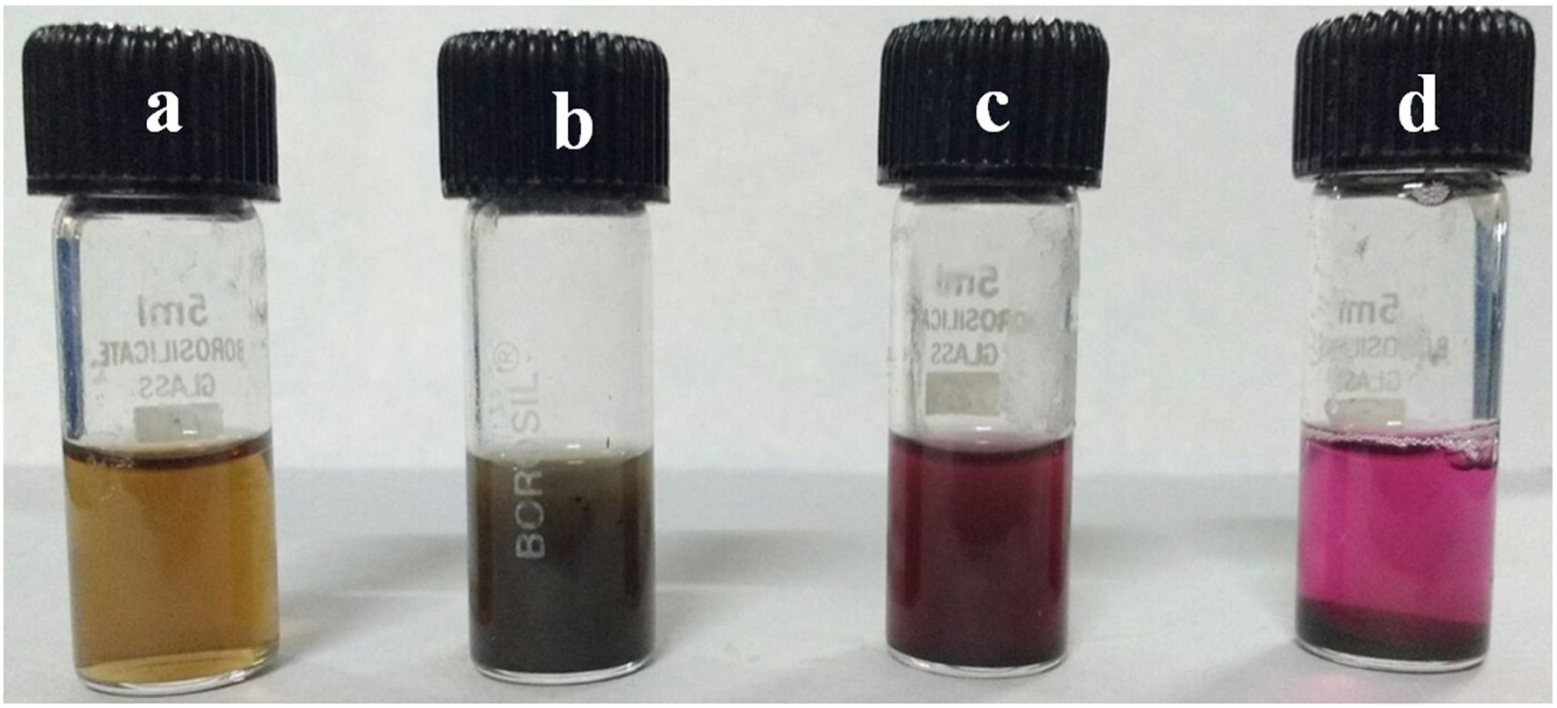

Fig S1. The comparison of physiological stability of synthesized GO and PEGylated GO. The photographic visualization of alone GO aqueous dispersion was found stable for 30 days (a), PEGylated GO aqueous dispersion was stable for 30 days (b), the PEGylated GO dispersion in DMEM medium was also stable for 30 days (c) whereas the alone GO got aggregated in DMEM medium (d)

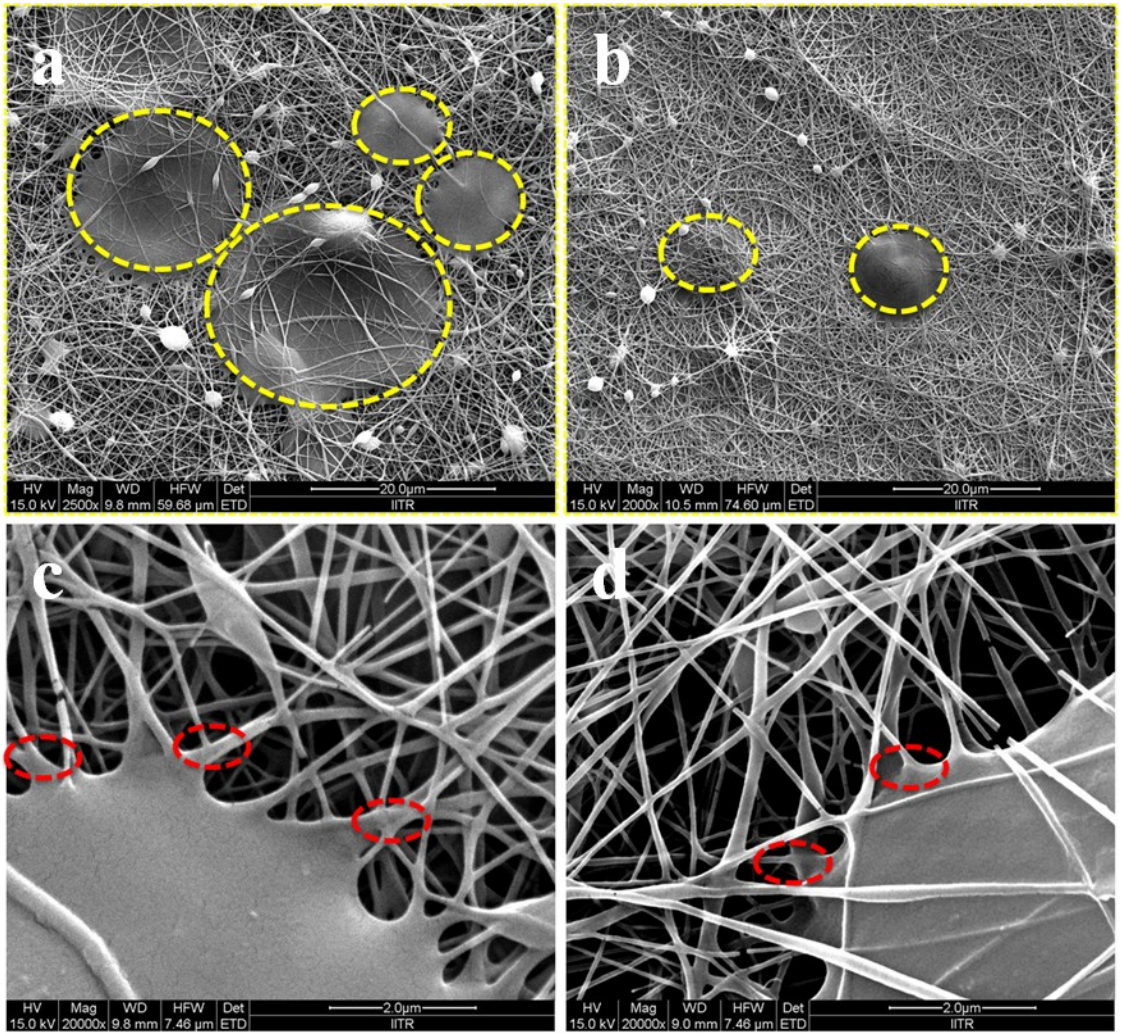

Fig S2. FE-SEM micrograph showing the optimization of nanofiber formation with self assembled GO sheet (shown in yellow circles) incorporated into the nanofibers to obtain smooth fibers with less or no beads. (a, b). The images shown below (c, d) clearly showed the nanofiber coming out of the self assembled micron size acquired GO sheets (shown in small red circles) thus it clearly showed the fiber formation along with incorporated GO sheet.

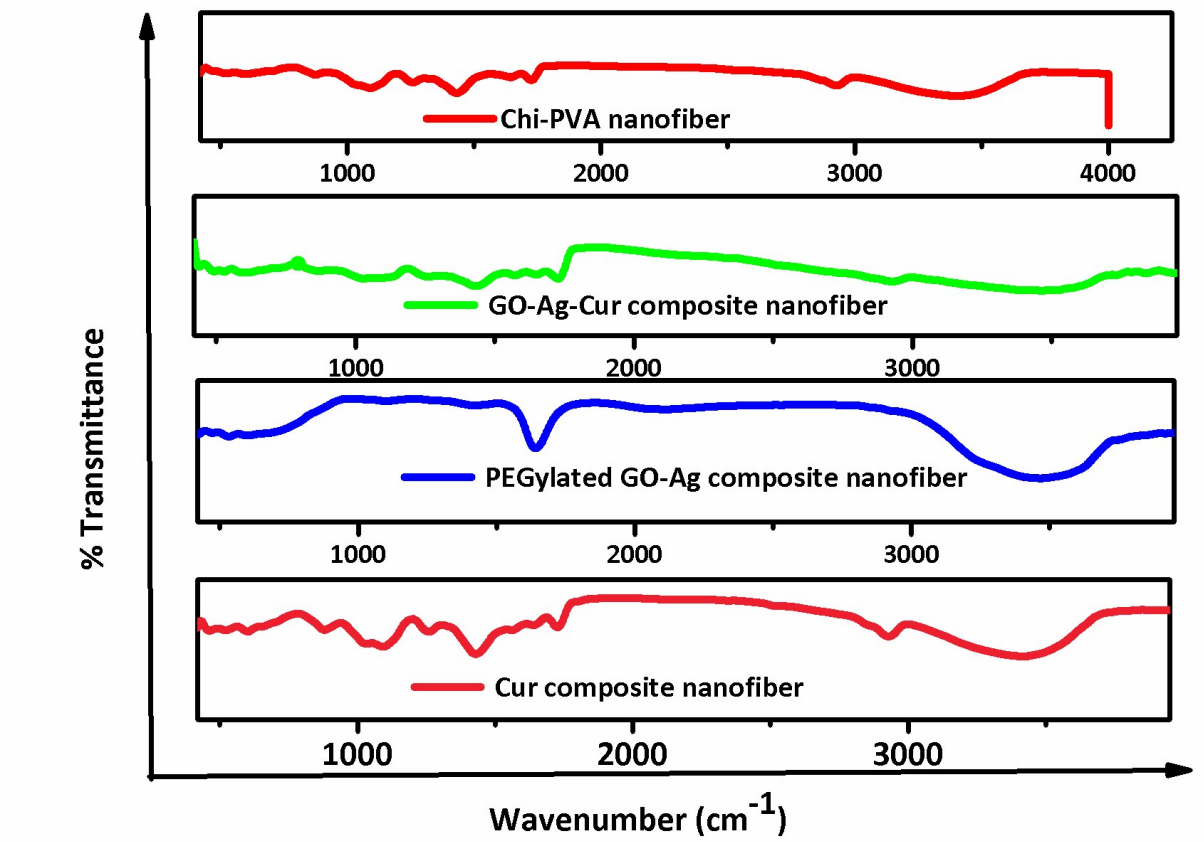

Fig S3. FTIR spectral analysis showing distinctive peak of CS/PVA nanofiber and PEGylated GO based composite nanofibers.

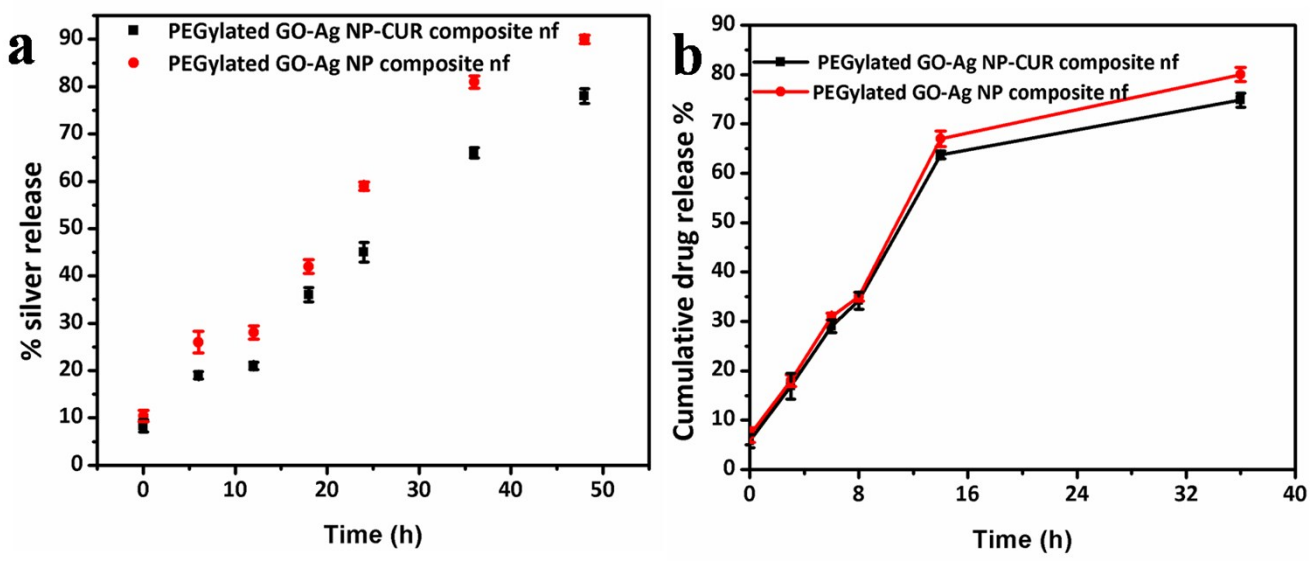

Fig S4. *In vitro* drug release study of PEGylated GO-Ag NP and PEGylated GO-Ag NP-CUR composite nanofiber to evaluate the amount of silver ions and drug release from the nanofiber at different time points.

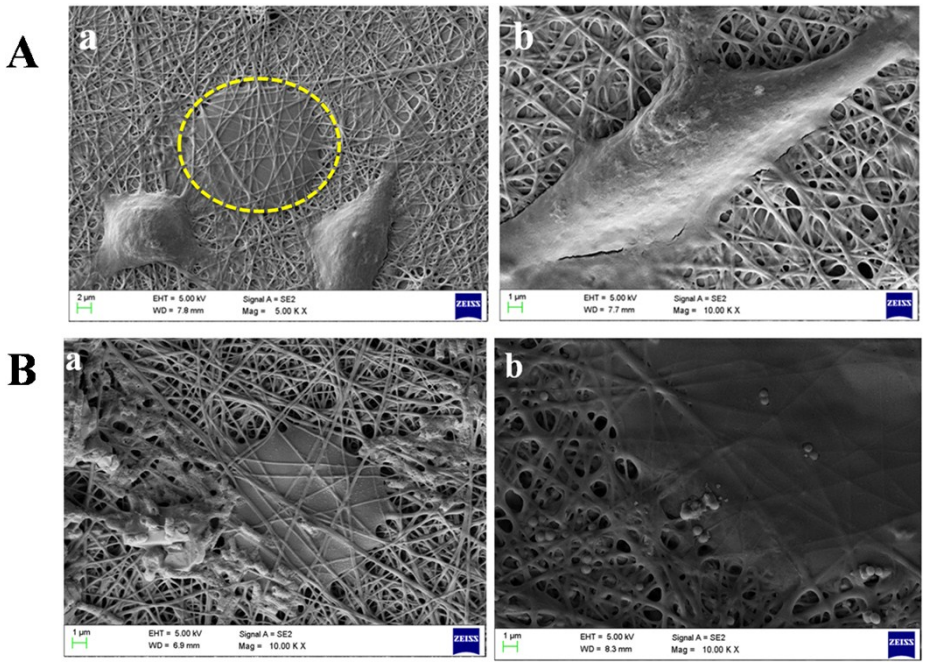

Fig. S5 A) FE-SEM micrograph showing the fibroblast (NIH-3T3) cells attachment and cell proliferation seeded over the PEGylated GO composite for period of 24 h. **B)** The FE-SEM micrograph showing the death of bacterial cell seeded over the composite nanofiber (a) the *DH5α E. coli* and *S. aureus* (b) bacteria.