Supporting Information

Photodynamic Activity of Graphene Oxide/Polyaniline/Manganese Oxide Ternary Composites Towards Both Gram-Positive and Gram-Negative Bacteria

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Table S1. Comparison of Mn contents (wt%) in GPM-1 and GPM-2 from XPS and ICP-OES measurements

Sample	XPS	ICP-OES
GPM-1	1.65%	1.82%
GPM-2	1.53%	1.65%

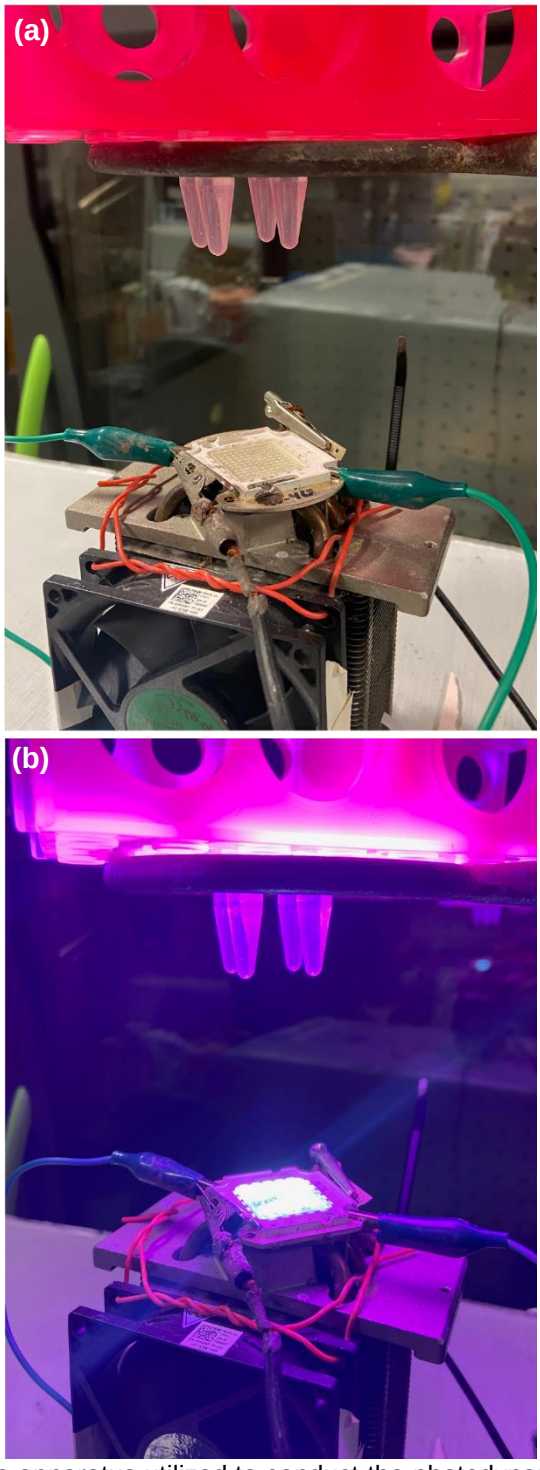

Figure S1. Photographs of the apparatus utilized to conduct the photodynamic experiments with the vials containing photocatalysts and respective bacteria (a) before and (b) after turn on of 365 nm photo irradiation.

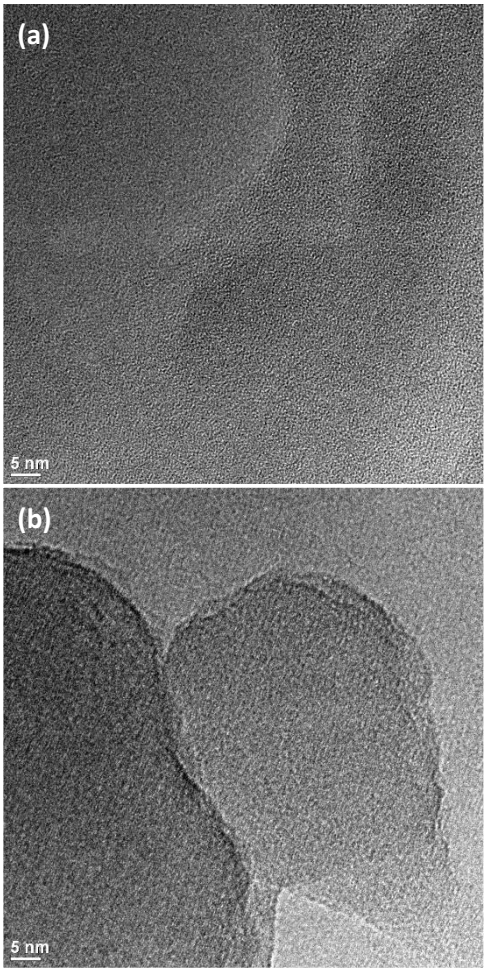

Figure S2. High-resolution TEM images of (a) GPM-1 and (b) GPM-2 nanocomposites.

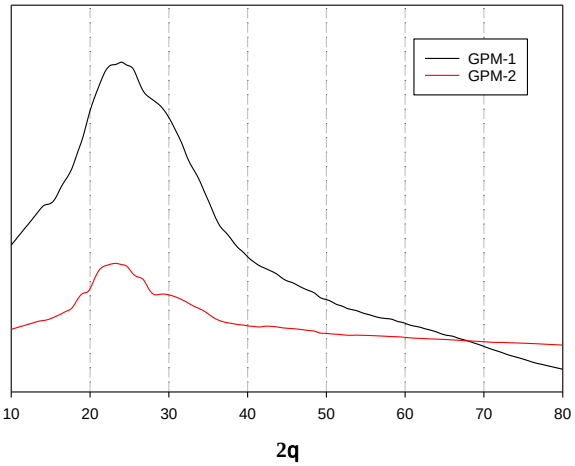

Figure S3. XRD patterns of GPM-1 and GPM-2. The broad peak centered at 2θ = 23.8° likely includes the combined contributions of polyaniline (200) and graphene oxide nanosheets (002) (Y. Zhang, et al., *RSC Adv*. **2017**, *7*, 54031-54038). No diffraction patterns can be resolved for manganese oxides due to the low contents.

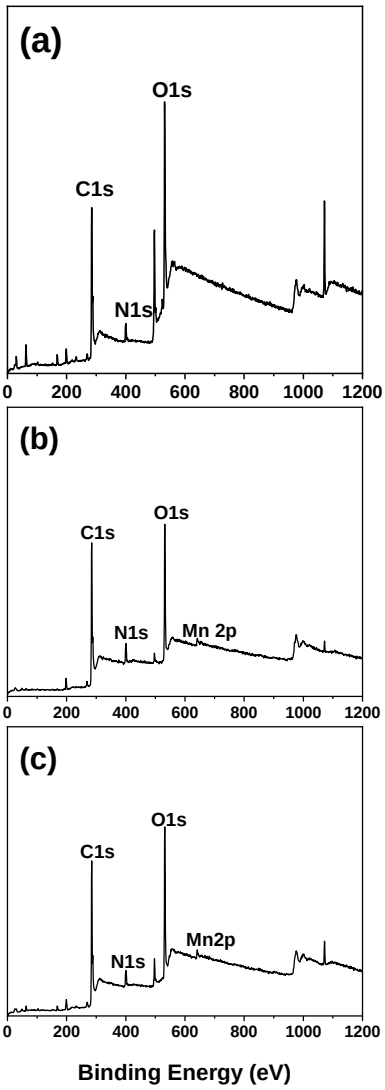

Figure S4. XPS survey scan of (a) GP, (b) GPM-1, and (c) GPM-2.

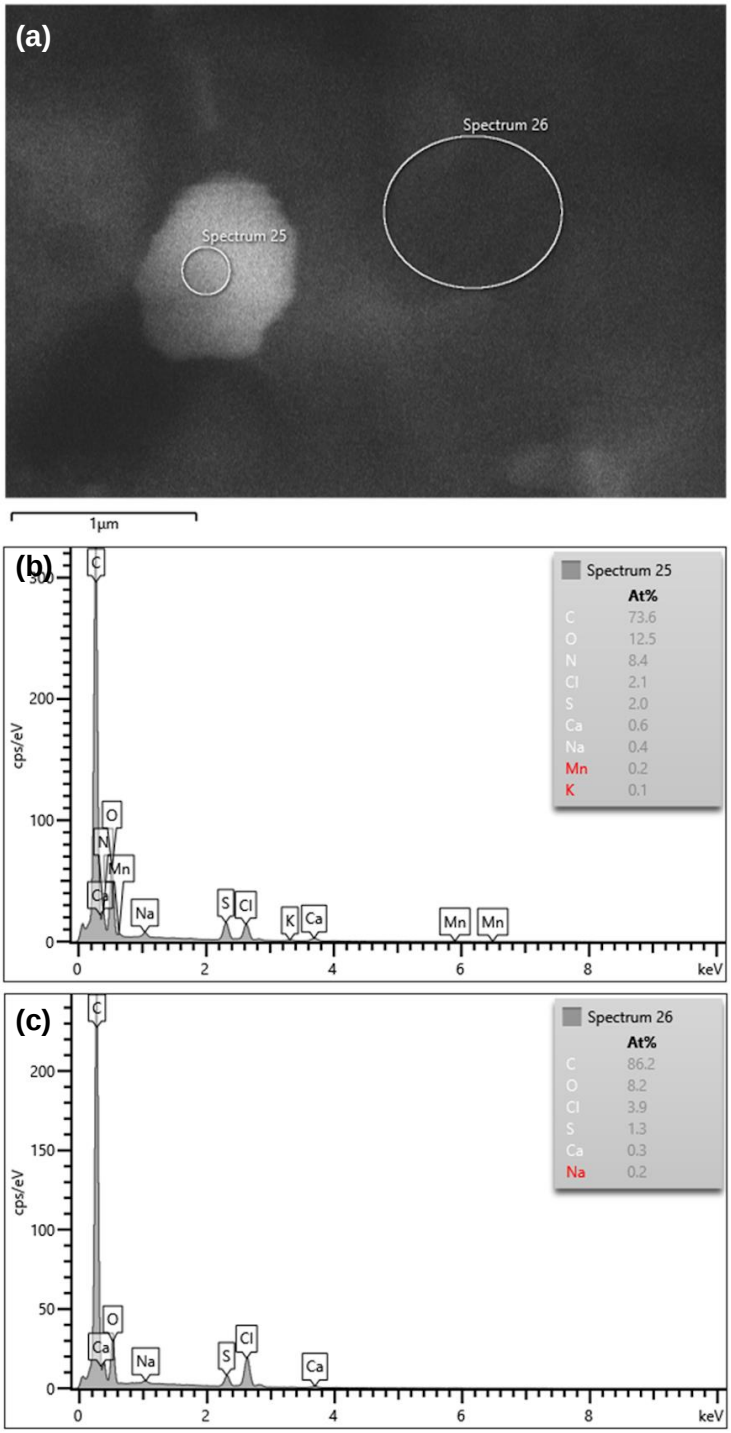

Figure S5. (a) SEM Image of the GPM-1 sample with atomic percentage analysis at various positions on the surface of the nanocomposite. The corresponding EDS spectra are shown in panels (b) and (c).

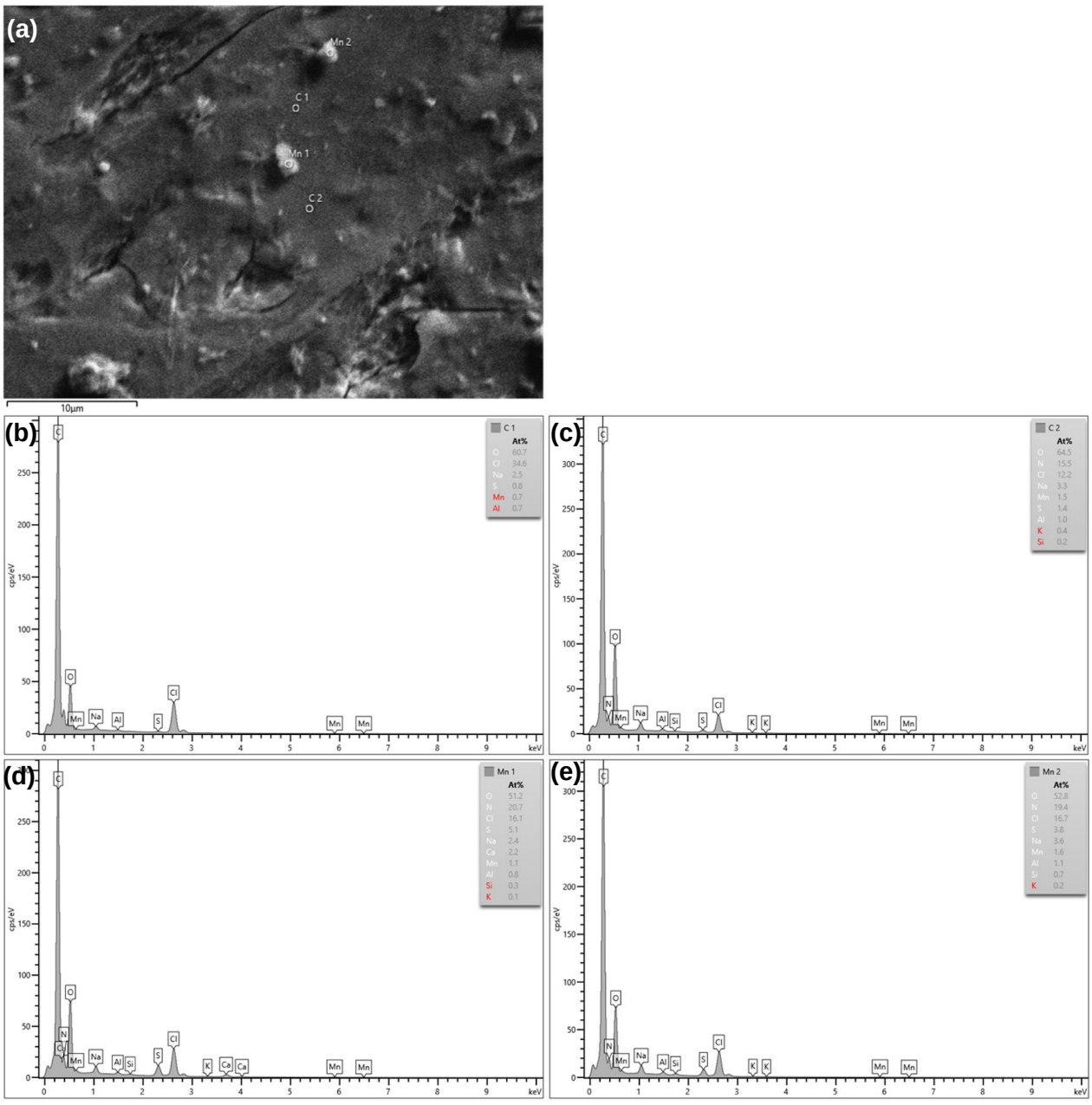

Figure S6. (a) SEM Image of the GPM-2 sample with atomic percentage analysis at various positions on the surface of the nanocomposite. The corresponding EDS spectra are shown in panels (b) to (e).

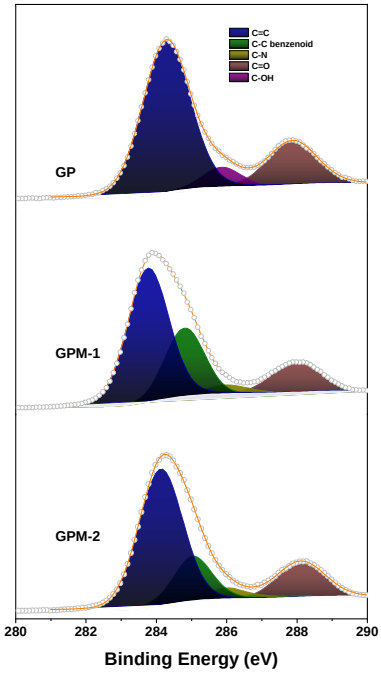

Figure S7. High-resolution XPS scans of the C 1s electrons in GP, GPM-1, and GPM-2. Dotted curves are experimental data and shaded peaks are deconvolution fits.

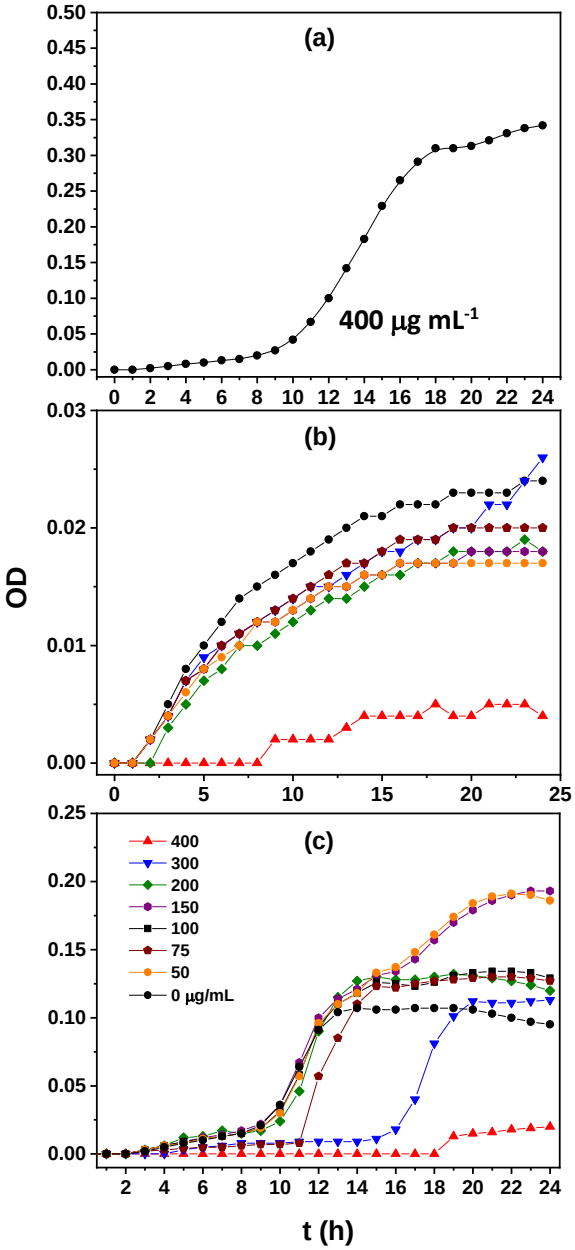

Figure S8. Growth curves of *S. epidermidis* in the dark in the presence (a) GP, (b) GPM-1, and (c) GPM-2 at varied concentrations.

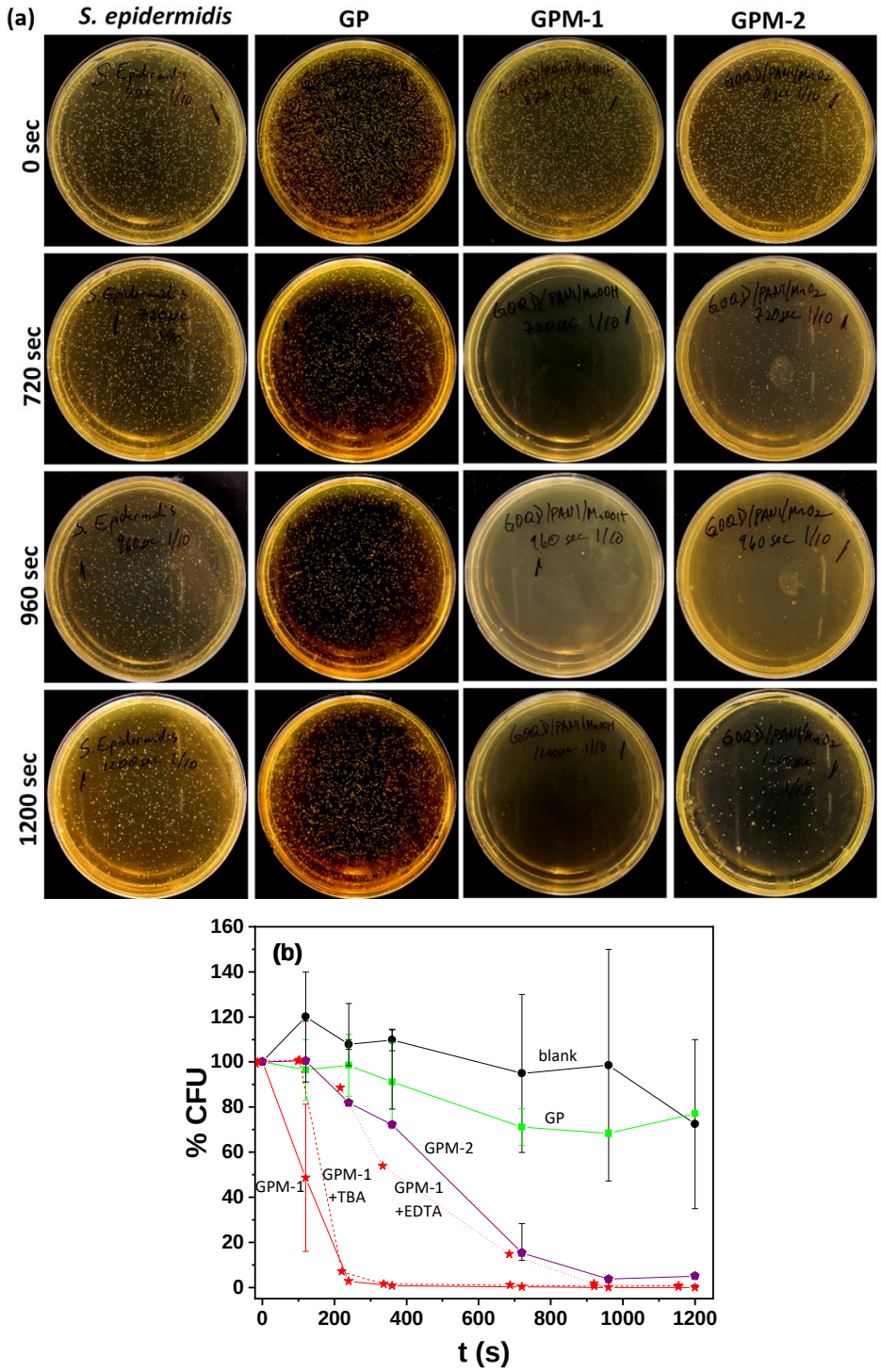

Figure S9. (a) Photographs of LB agar plates after incubation with *S. epidermidis* cell suspensions under photoirradiation at 365 nm for varied periods of time in the absence and presence of GP, GPM-1, and GPM-2 at the concentration of 60 μg/mL. (b) Variation of the normalized bacteria CFU with photoirradiation time from panel (a), and the corresponding plots in the presence of GPM-1 along with TBA (red dashed curve) and EDTA (red dotted curve) scavengers. The error bars reflect the standard deviations of the triplicate measurements.