

Supplementary Information

Antibacterial hybrid cellulose-graphene oxide nanocomposite immobilized with silver nanoparticles

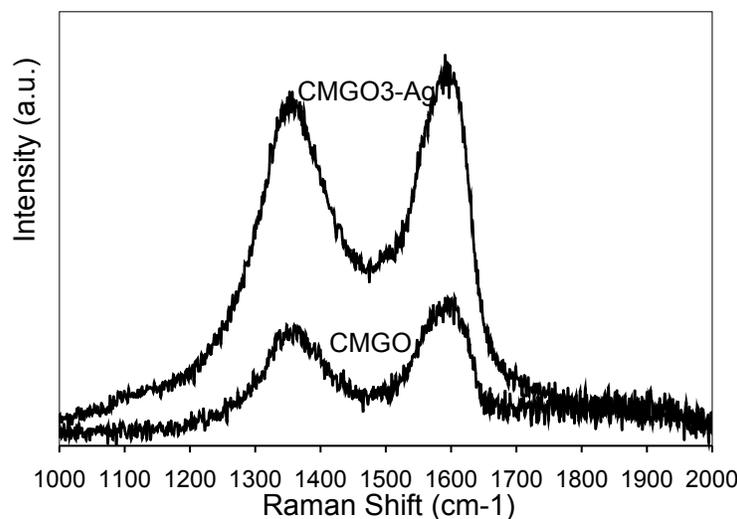


Fig. S1 Raman spectra of CMGO and CMGO3-Ag.

Raman spectra of CMGO and CMGO-Ag was collected from 1000 to 2000 cm⁻¹ using a Raman spectroscopy (Renishaw inVia Raman microscope) with a laser excitation wavelength of 514 nm. The Raman spectrum for CMGO and CMGO3-Ag membranes is shown in Fig. S1. Both membranes exhibited two peaks at 1560 and 1380 cm⁻¹, which corresponded the D and G band of GO, respectively. Both D and G peaks bands for the CMGO-Ag sample was intensified due to the presence of AgNP that introduces the surface enhanced Raman scattering (SERS) effect.

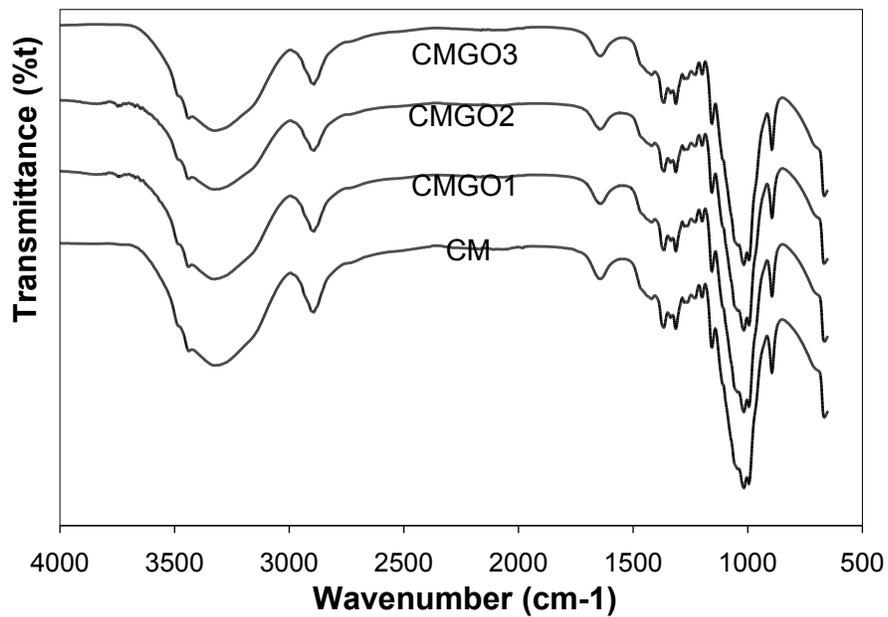


Fig. S2 IR spectra for the cellulose membrane samples.

An attenuated total reflectance Fourier transform infrared (ATR-FTIR, Perkin Elmer Spectrum 400) was used to characterize the chemical functional groups of the samples (as shown in Fig. S2).

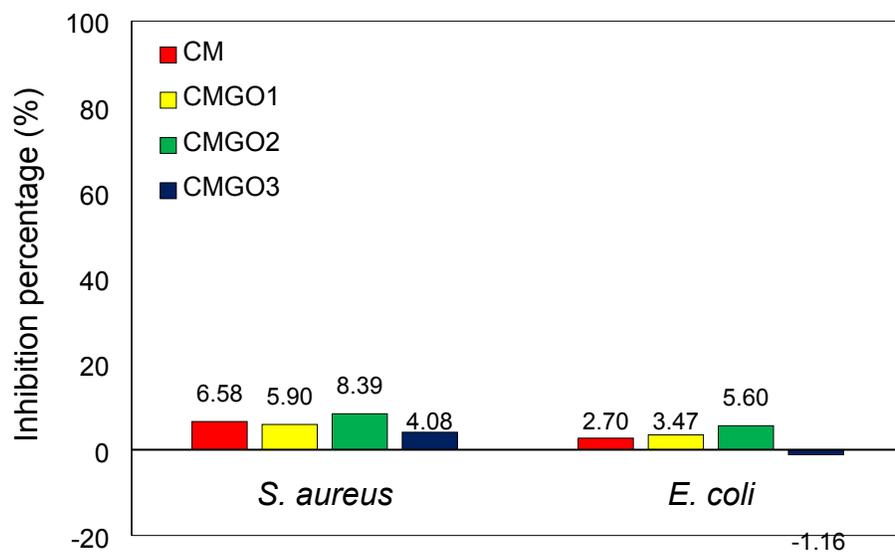


Fig. S3 The antibacterial activity of membranes without AgNPs.