

Fig S1. MALDI spectrum of gramicidin

Fig S2 . Optical images of plate counting protocol for *P. aeruginosa* where (a) 0, (b) 25mg/mL, (c) 50mg/mL, (d) 75mg/mL and (e) 1.0mg/mL.

Fig S3 . Optical images of plate counting protocol for *S. aureus* where (a) 0, (b) 25mg/mL, (c) 50mg/mL, (d) 75mg/mL and (e) 1.0mg/mL.

Fig S4. Fluorescence respond upon addition different nanomaterials.

Fig S5. 3D-Fluorescence emission of tryptophan for (A) *P. aeruginosa* and (B) *S. aureus* after incubation with (a) control, (b) gramicidin, (c) graphene oxide and (d) graphene oxide@gramicidin

Table 1 The antibacterial activity (minimum inhibitory concentration in $\mu\text{g mL}^{-1}$) of GO, GD, and GOGD

Bacteria Strain	Technique	GD	GO	GOGD
<i>P.aeruginosa</i>	standard microdilution procedures	ND	200	2
<i>S.aureus</i>	standard microdilution procedures	200	40	2

Fig. S1

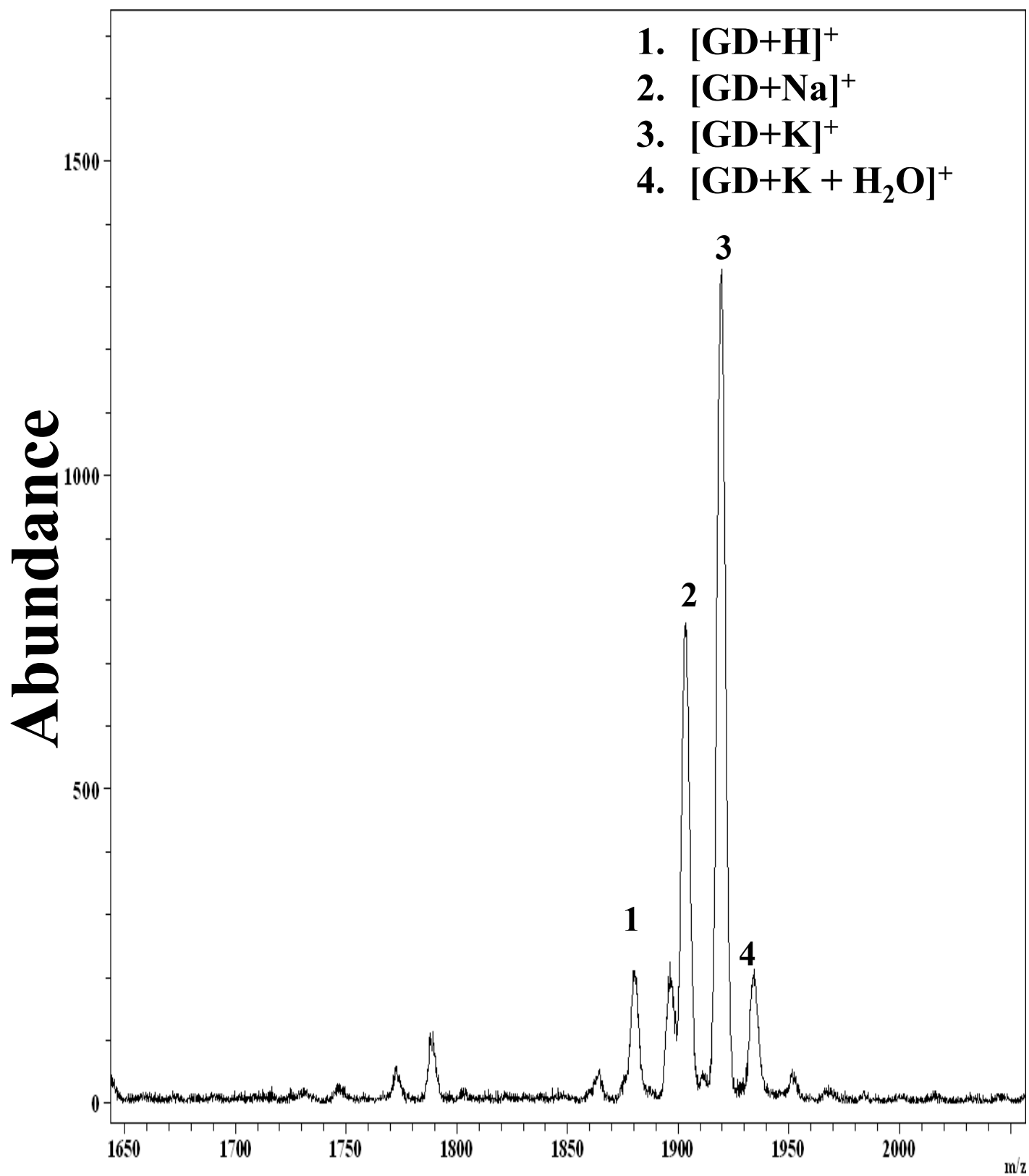


Fig. S2

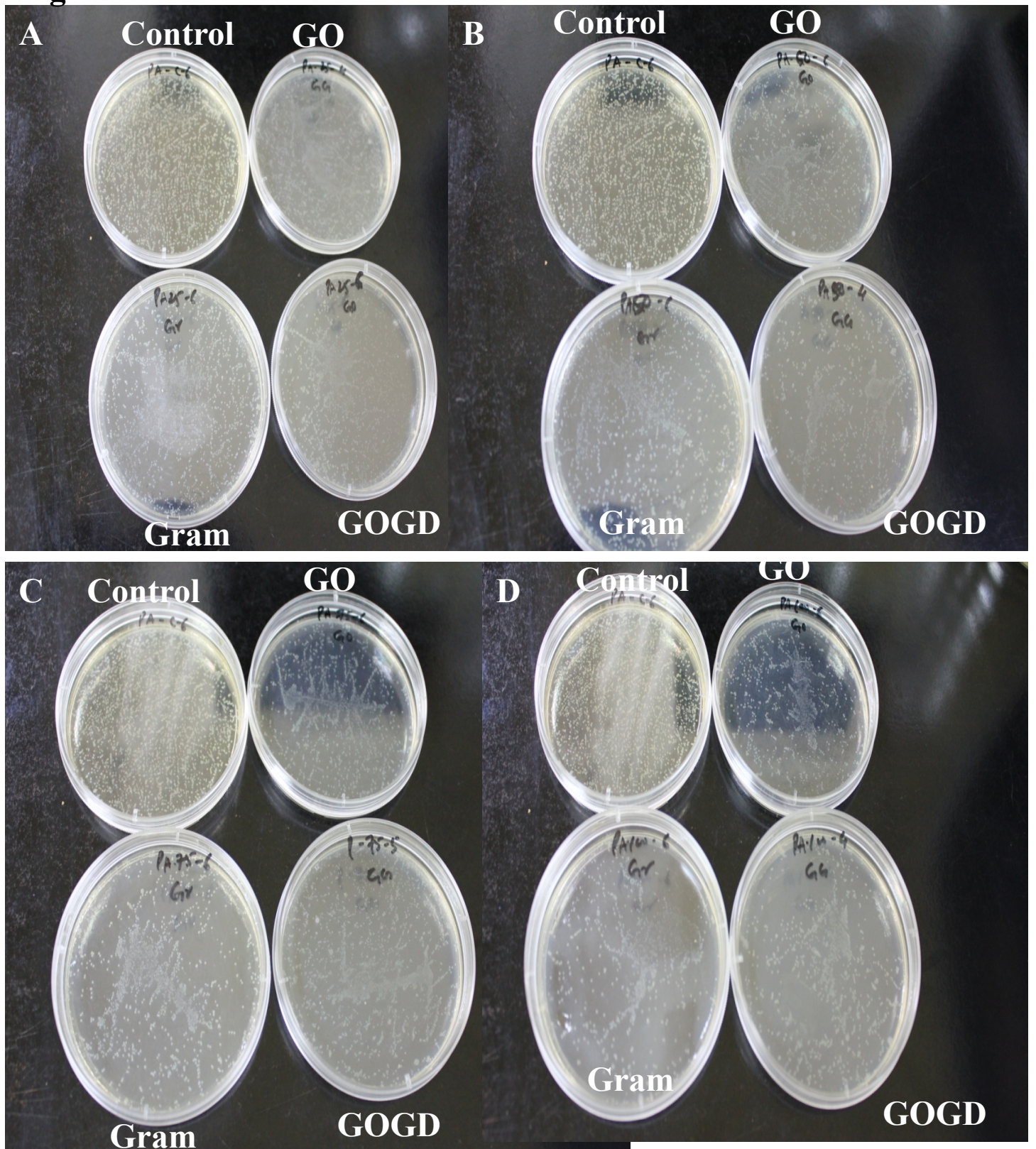


Fig. S4

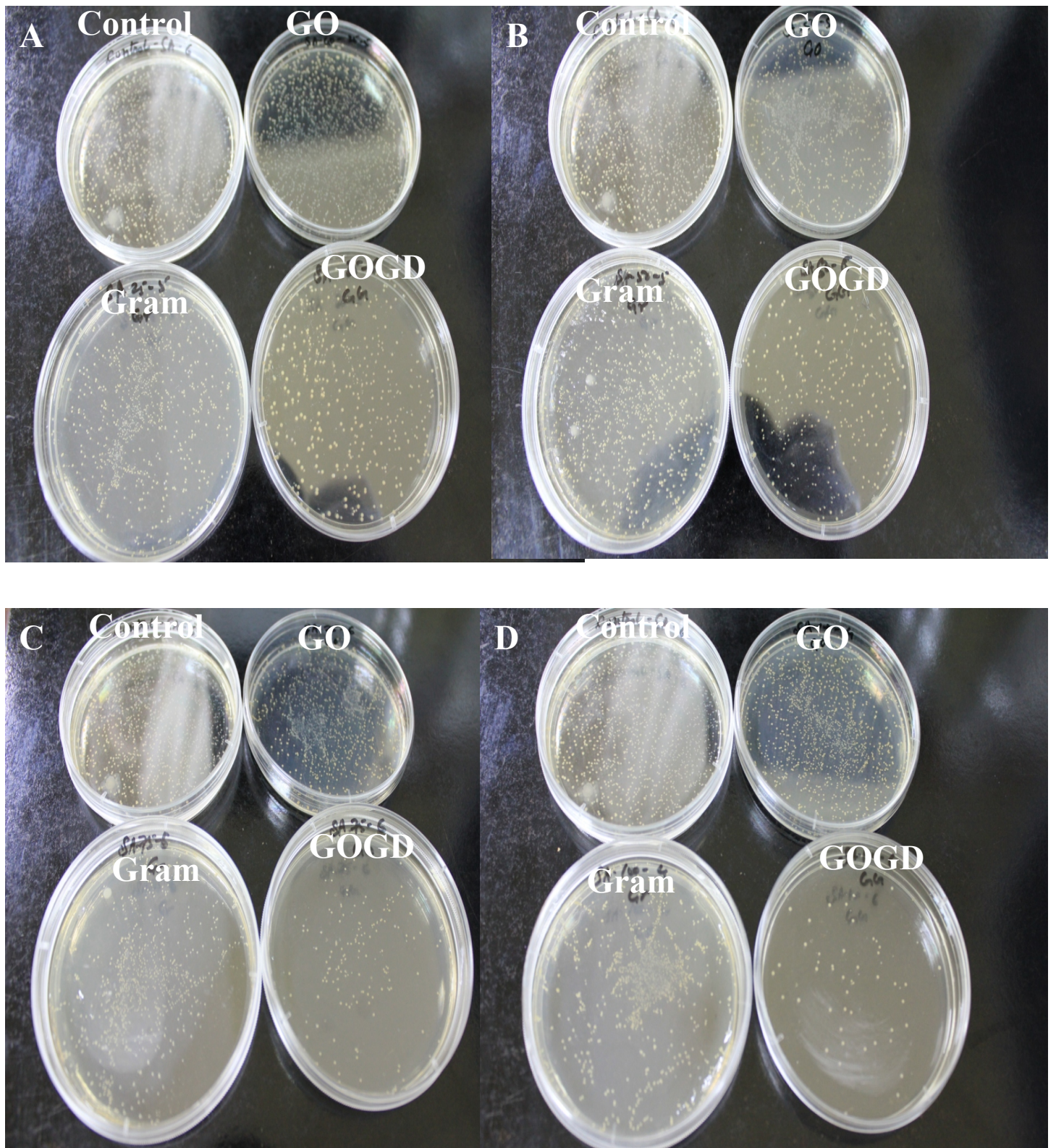


Fig. S5

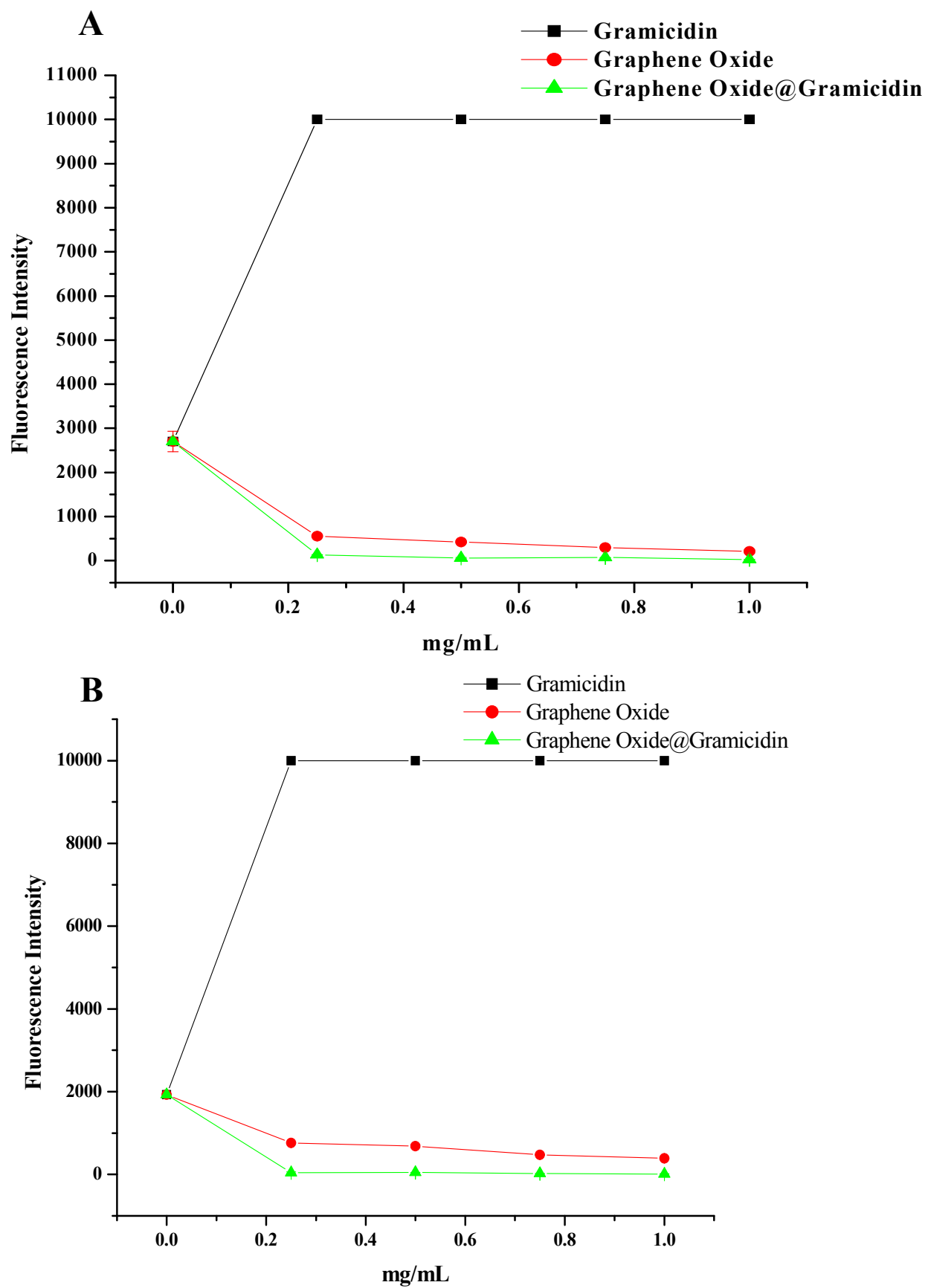


Fig. S6