Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

The antibacterial activity of the micro and nanostructures of the optical material tris(8-hydroxyquinoline)aluminum and its application as an antimicrobial coating

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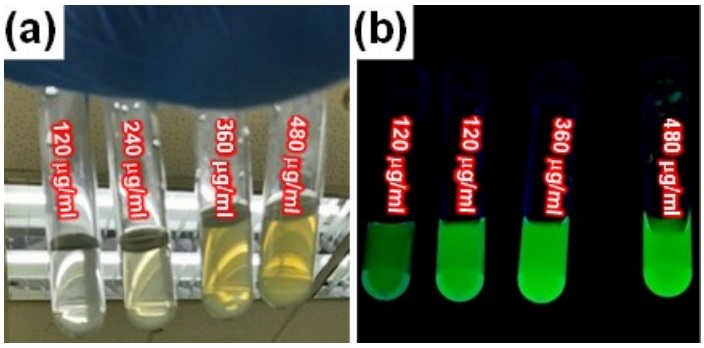

Fig. S1. Images for the Alq_3 NPs sample at concentrations of 120, 240, 360, and 480 µg/ml (a) an optical image in visible light and (b) a fluorescence image under UV with an excitation wavelength of 385 nm.

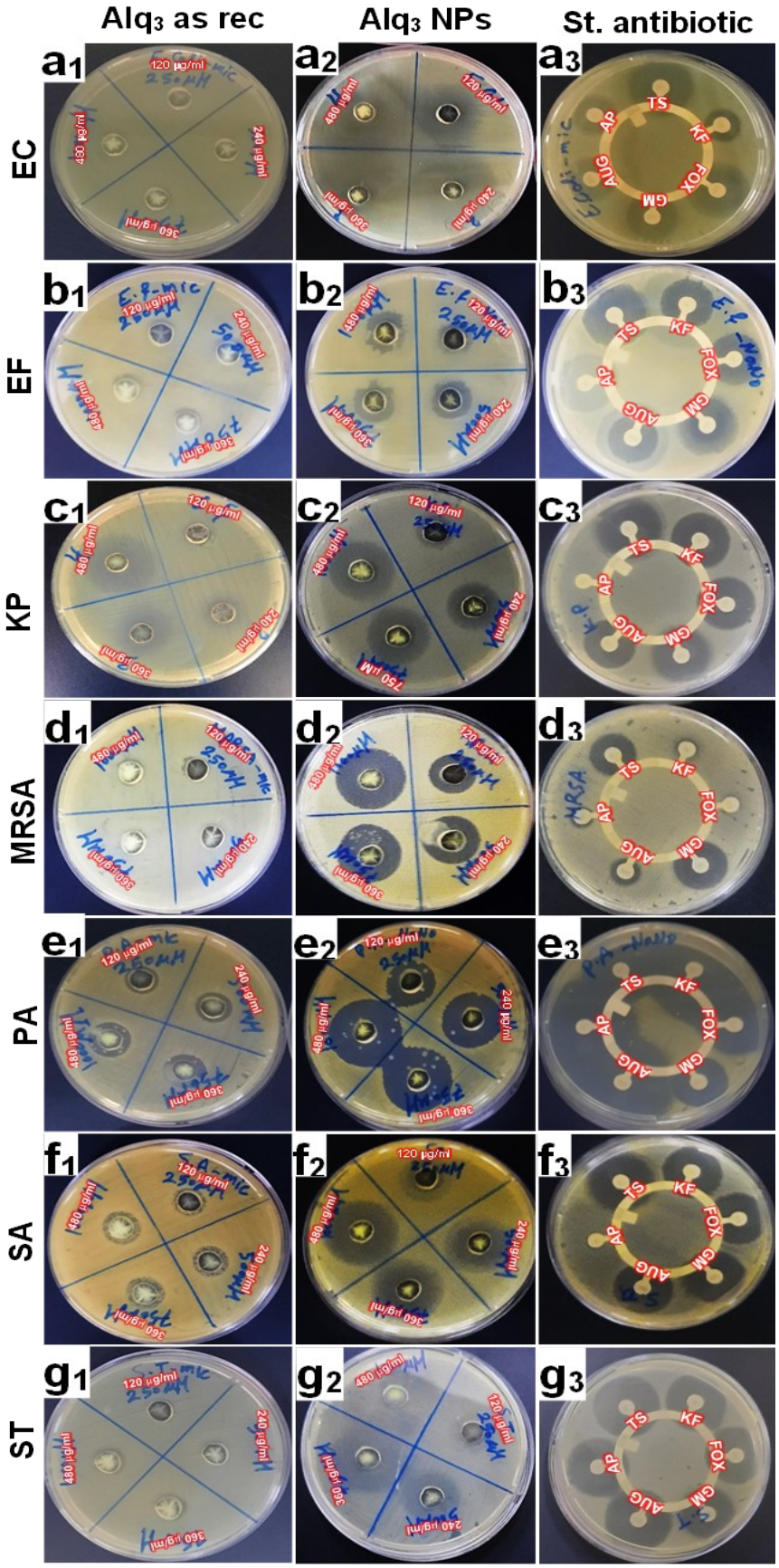

Fig. S2. The agar well diffusion assay for testing the antibacterial activity of both the Alq_3 as rec (first column), the Alq_3 NPs (second column), and the St. antibiotics AP 10 µg/disc, AU 30 µg/disc, GM 10 µg/disc, FOX 30 µg/disc, KF 30 µg/disc, and TS 25 µg/disc (third column) for 24 h incubation of the bacteria (EC, EF, KP, MRSA, PA, SA, and ST) that were spread on the agar plates with created well in the agar filled by the concentrations of 120, 240, 360, and 480 µg/ml.

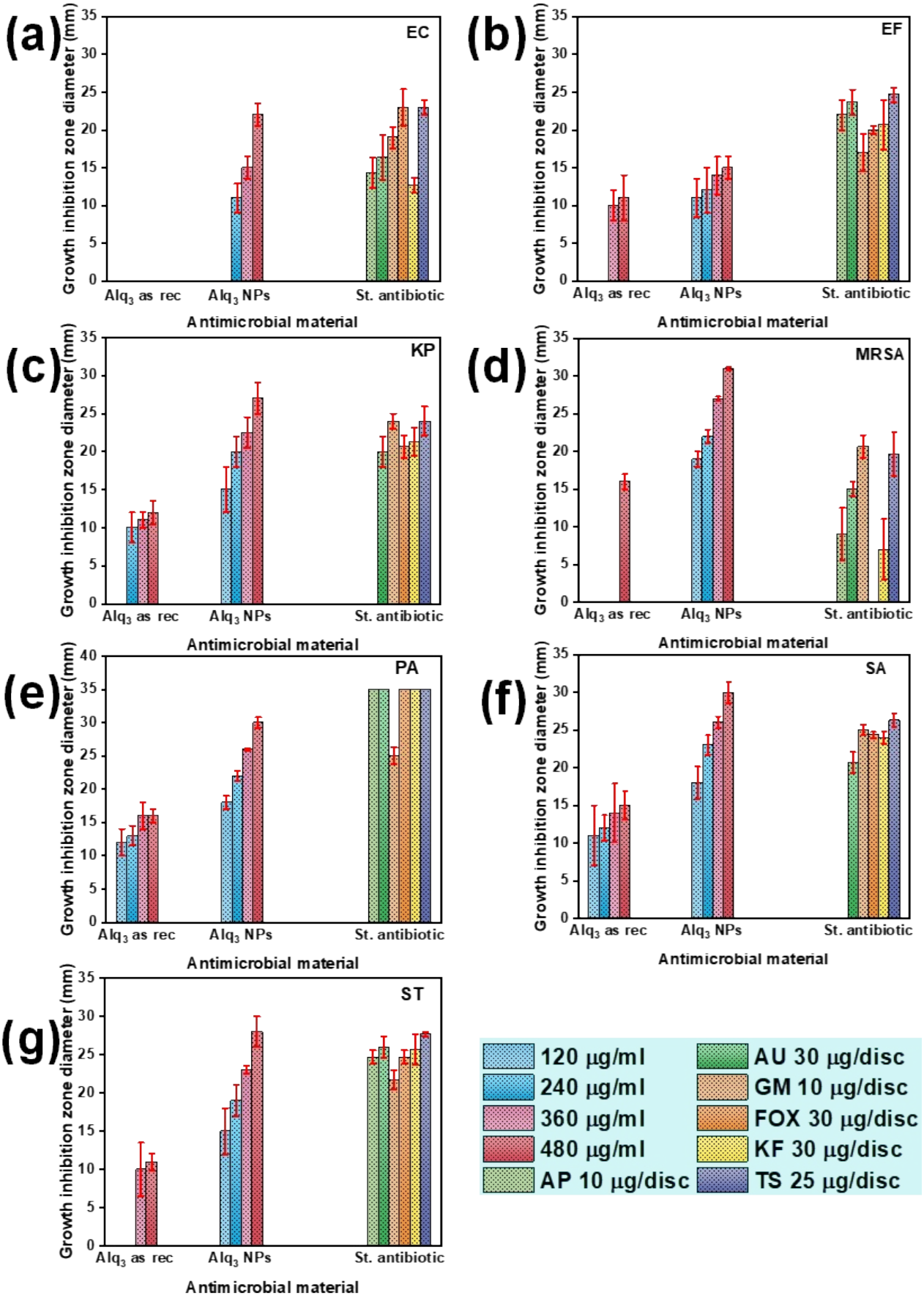

Fig. S3. Histogram demonstrating the inhibition zones for both the Alq_3 as rec the Alq_3 NPs samples (170 µl/well) at concentrations of 120, 240, 360, and 480 µg/ml, besides the St. antibiotics AP 10 µg/disc, AU 30 µg/disc, GM 10 µg/disc, FOX 30 µg/disc, KF 30 µg/disc, and TS 25 µg/disc against the bacteria strains EC, EF, KP, MRSA, PA, SA, and ST, which were incubated for 24 h.

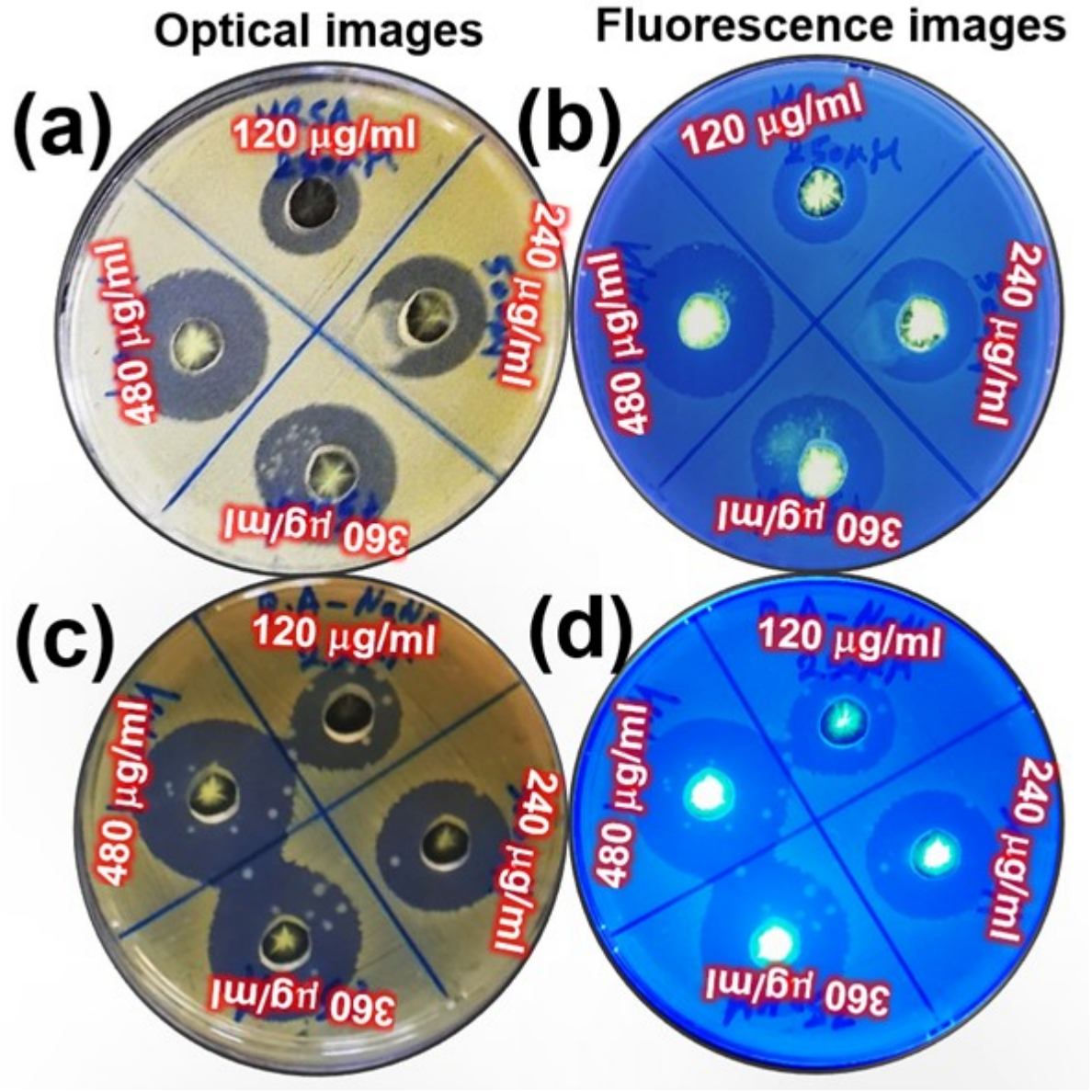

Fig. S4. Optical and fluorescent images of the agar plates with wells filled with Alq_3 NPs sample concentrations and cultured with (a and b) MRSA and (c and d) PA bacteria under normal light and UV (λ = 385 nm).

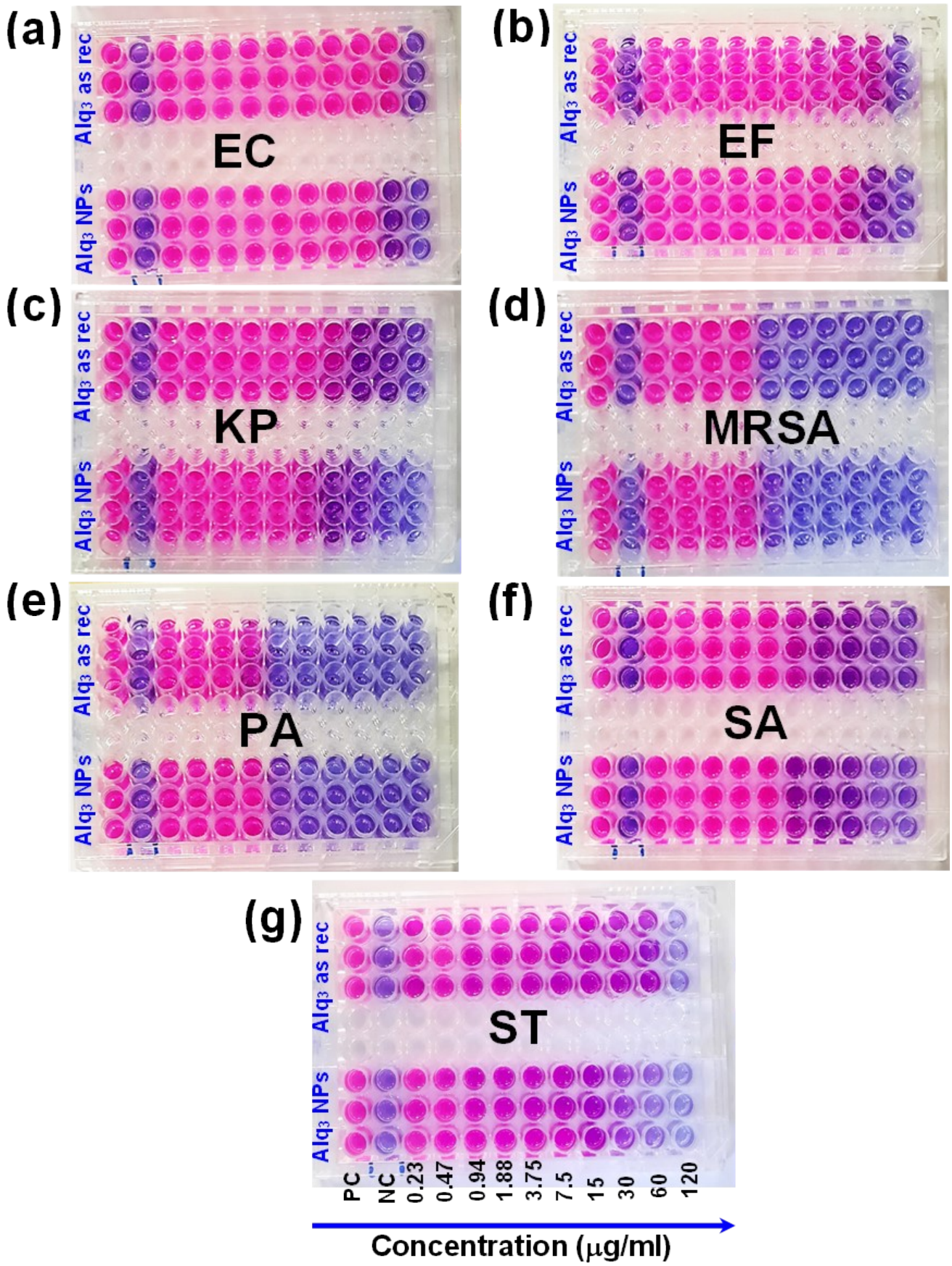

Fig. S5. The resazurin assay in the 96-well microtiter plates for testing the antibacterial activity of both the Alq_3 as rec and Alq_3 NPs samples at concentrations of 120, 60, 30, 15, 7.50, 3.75, 1.88, 0.94, 0.47, 0.23 μg/ml against the tested human pathogenic bacterial strains (a) EC, (b) EF, (c) KP, (d) MRSA, (e) PA, (f) SA, and (g) ST. The pink wells contain active bacteria, whereas the blue wells contain fewer active bacteria or killed bacteria.