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paper

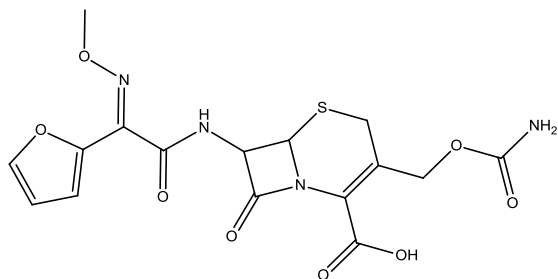
Synergistic enzyme inhibition effect of Cefuroxime by conjugation with gold and silver

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Supplementary Data



Structure 1: Structure of Cefuroxime

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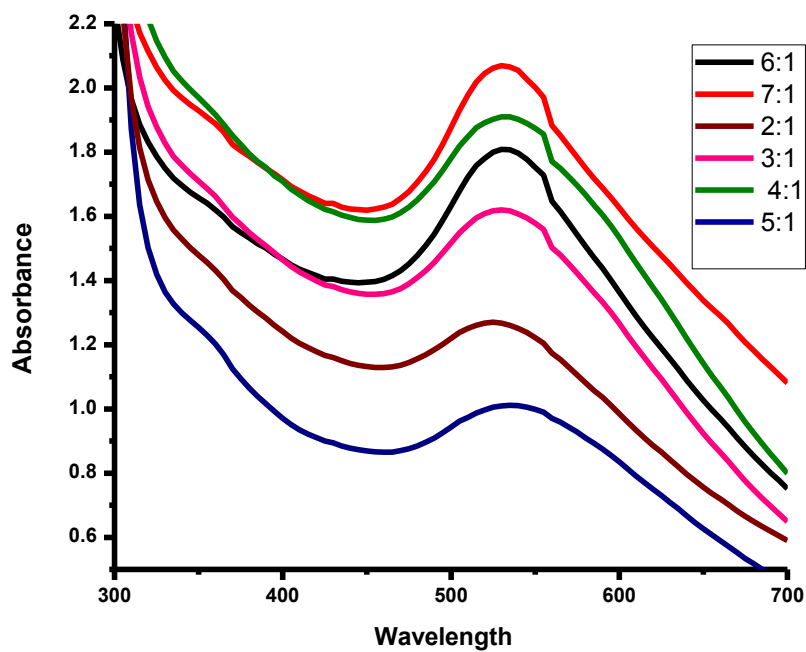


Figure S-1: UV-Visible spectra for AuNPs stabilized with cefuroxime, reduced with NaBH_4

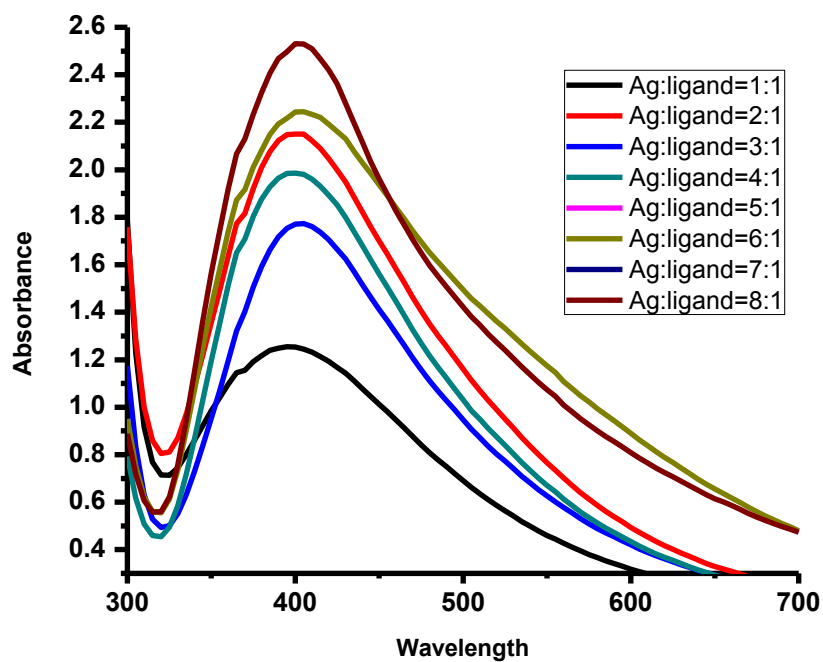


Figure S-2: UV-Visible spectra for AgNPs stabilized with cefuroxime reduced with NaBH_4

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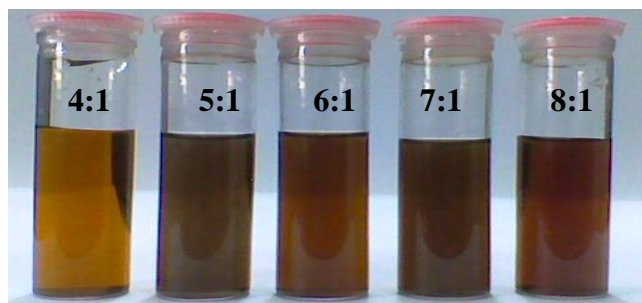


Figure S-3: Silver nanoparticles stabilized with cefuroxime (reduced with NaBH_4)

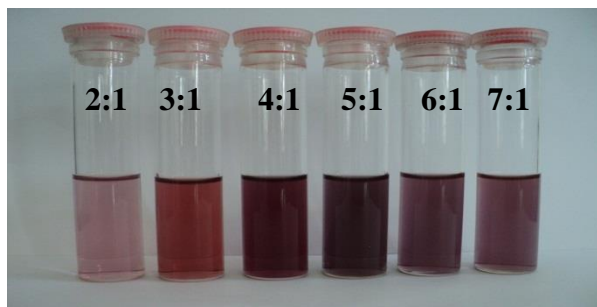


Figure S-4: AuNPs stabilized with cefuroxime reduced with TEA

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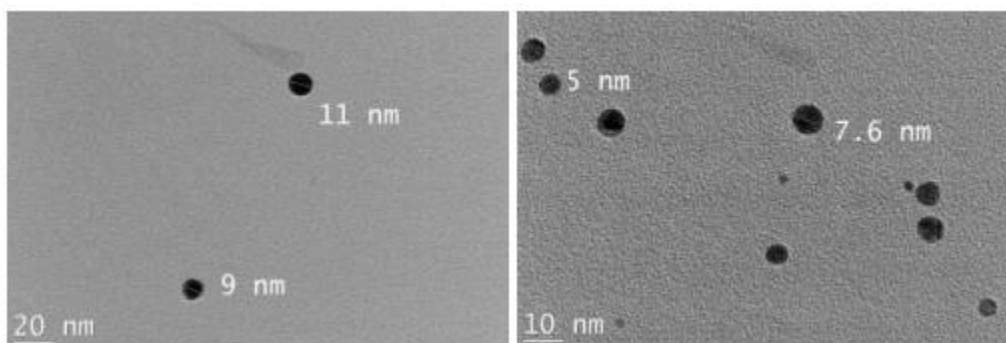


Figure S-5: size comparison of AuNPs reduced with TEA (left) and NaBH₄ (right)

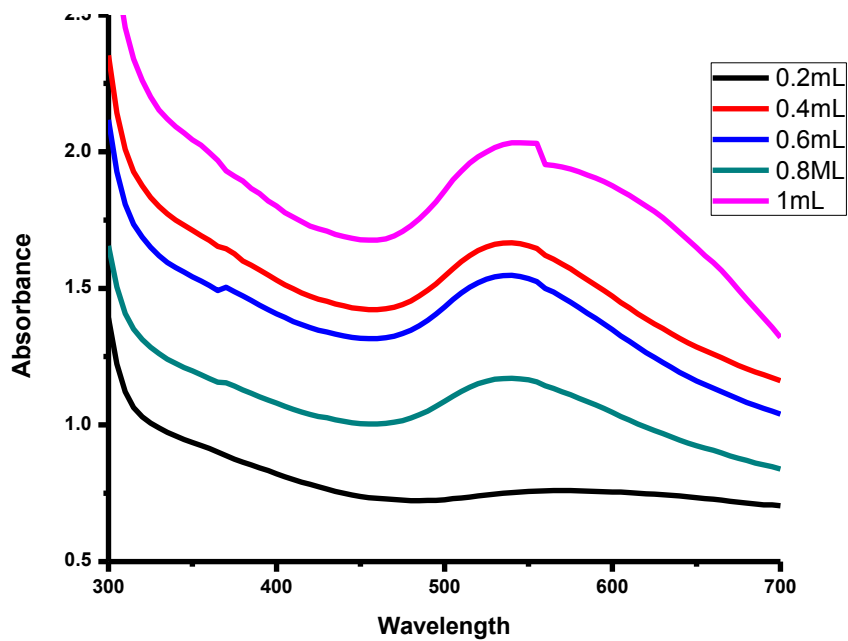


Figure ES-6: Spectral data for the effect of NaBH₄ on the size of AuNPs stabilized with cefuroxime

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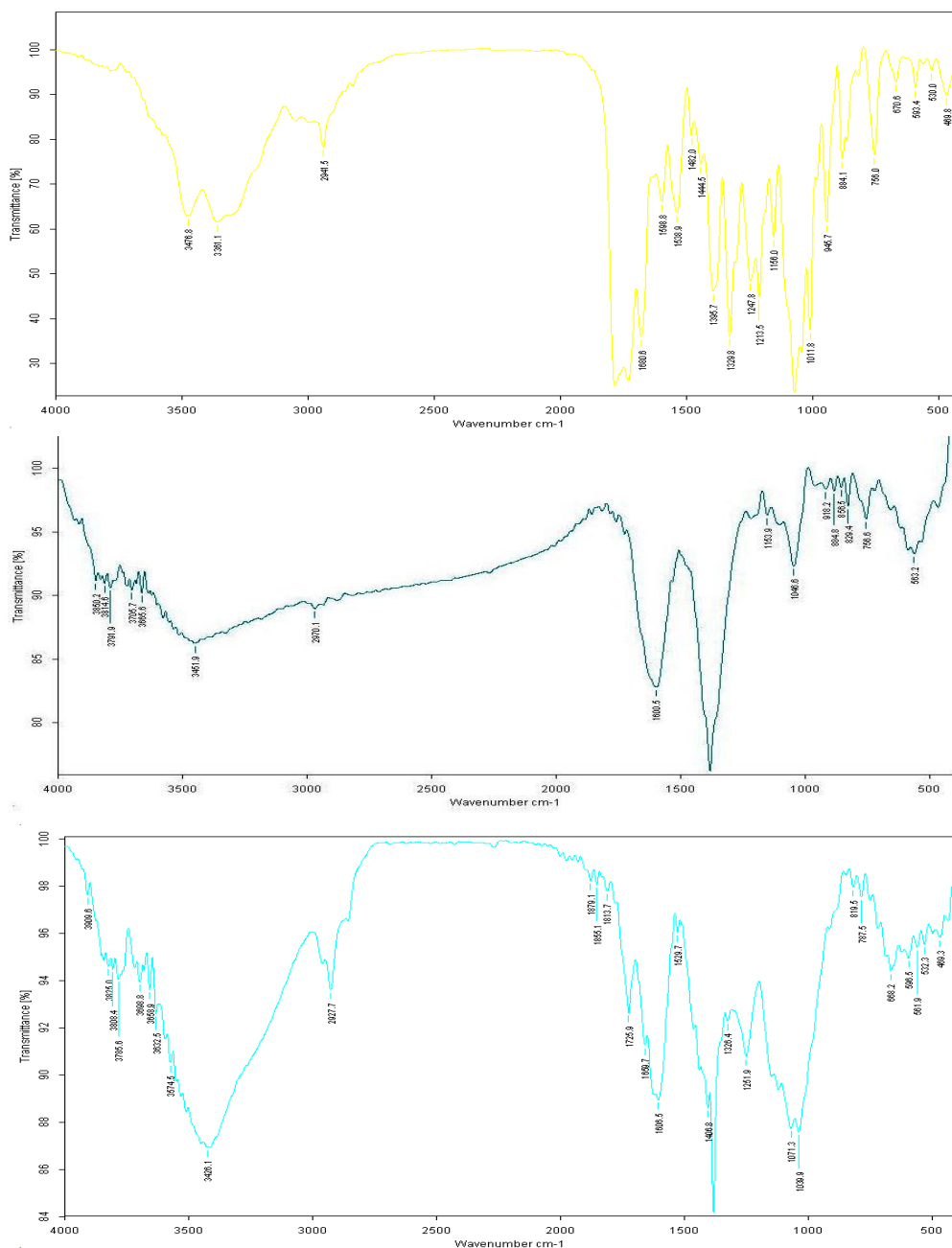


Figure S-7: FTIR data for cefuroxime (upper), AgNPs (middle) and AuNPs (lower)

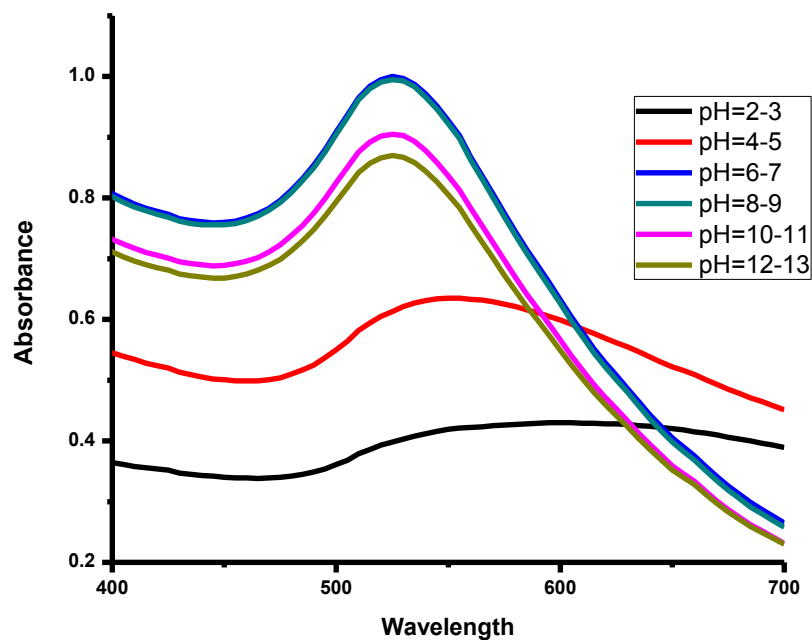


Figure S-8: Spectral data for the effect of pH on the stability of Cefuroxime capped GNPs

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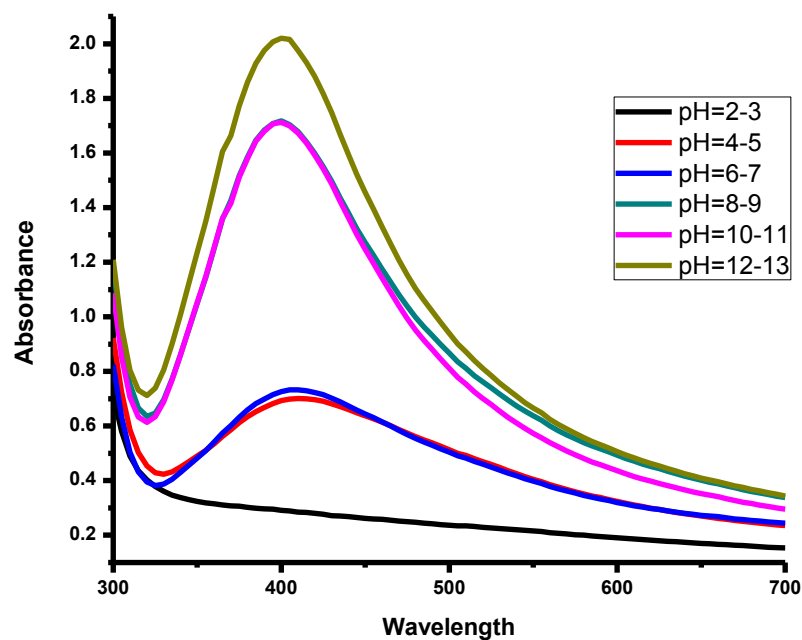


Figure S-9: Spectral data for the effect of pH on the stability of cefuroxime capped AgNPs

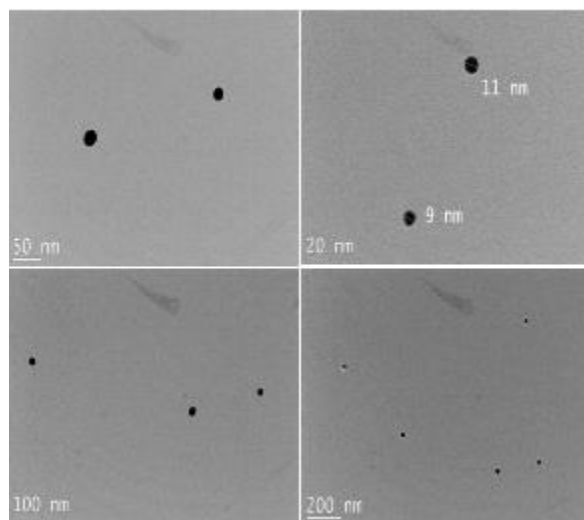


Figure S-10: TEM images for Cefuroxime capped AuNPs (reduced with TEA)

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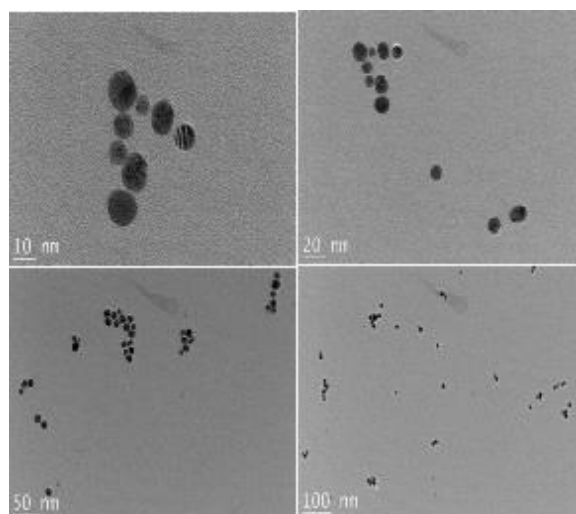


Figure S 11: TEM images for Cefuroxime capped AgNPs, and reduced with TEA

Table S-1: comparative enzymes inhibition studies of cefuroxime and its gold and silver nanoparticl

S.No	Enzymes /other activities	Cefuroxime	AuNPs	AgNPs	Alloys	Standard(μM)	Standard ($\mu\text{g/mL}$)	
1	Xanthine oxidase	%Inhibition	0	9.5	2.0	0	98.6	98.6
		$\text{IC}_{50} \pm \text{S.E.M} (\mu\text{g/mL})$	NA	NA	NA	NA	2.0 ± 0.01	0.27 ± 0.01
2	Urease	%Inhibition	98	94	90	98	98.2	98.2
		$\text{IC}_{50} \pm \text{S.E.M} (\mu\text{g/mL})$	31.05 ± 1.56	82.66 ± 1.06	23.96 ± 0.27	15.63 ± 0.59	21 ± 0.011	1.598 ± 0.011
3	Carbonic Anhydrase-II	%Inhibition	4.1	51.7	39.2	26.9	89.0	89.0
		$\text{IC}_{50} \pm \text{S.E.M} (\mu\text{g/mL})$	NA	464.53 ± 11.68	NA	NA	0.12 ± 0.03	0.027 ± 0.03
4	<i>In Vitro</i> α -Chymotrypsin	%Inhibition	15	45.4	63.8	73.8	98.6%	98.6
		$\text{IC}_{50} \pm \text{S.E.M} (\mu\text{g/mL})$	NA	NA	480.8 ± 8.4	410.7 ± 7.3	5.7 ± 0.1	3.45 ± 0.1

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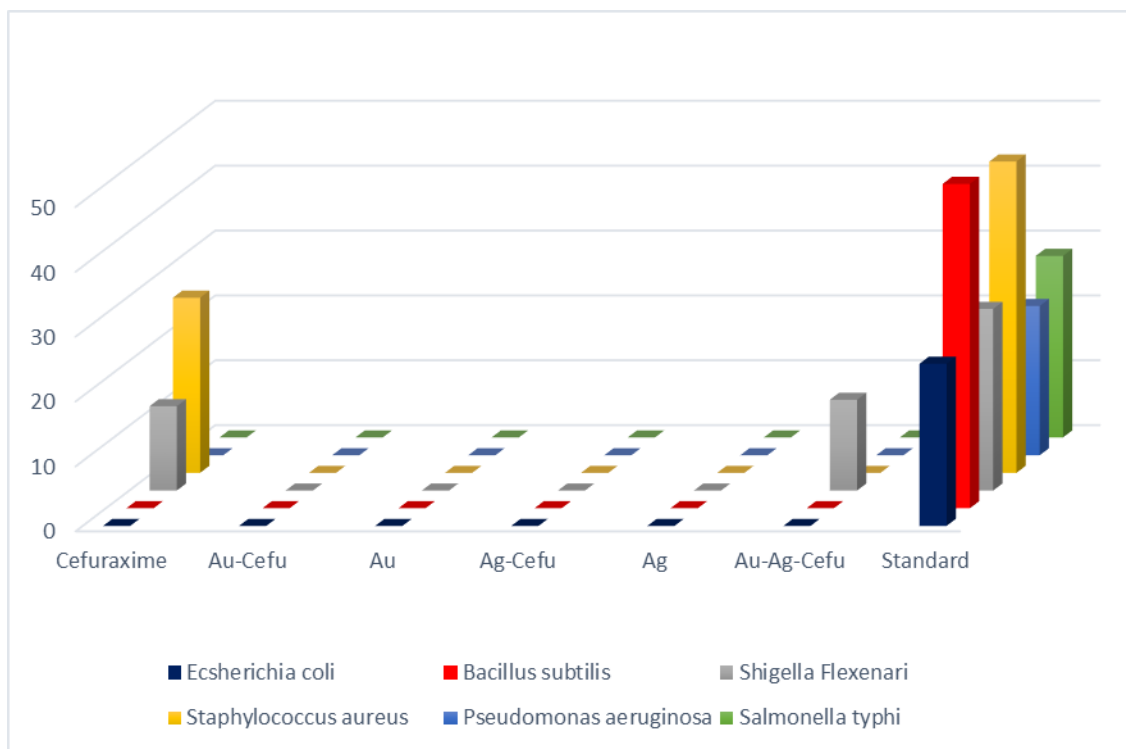


Figure S- 12: Showing antibacterial activities of cefuroxime and its gold and silver nanoparticles