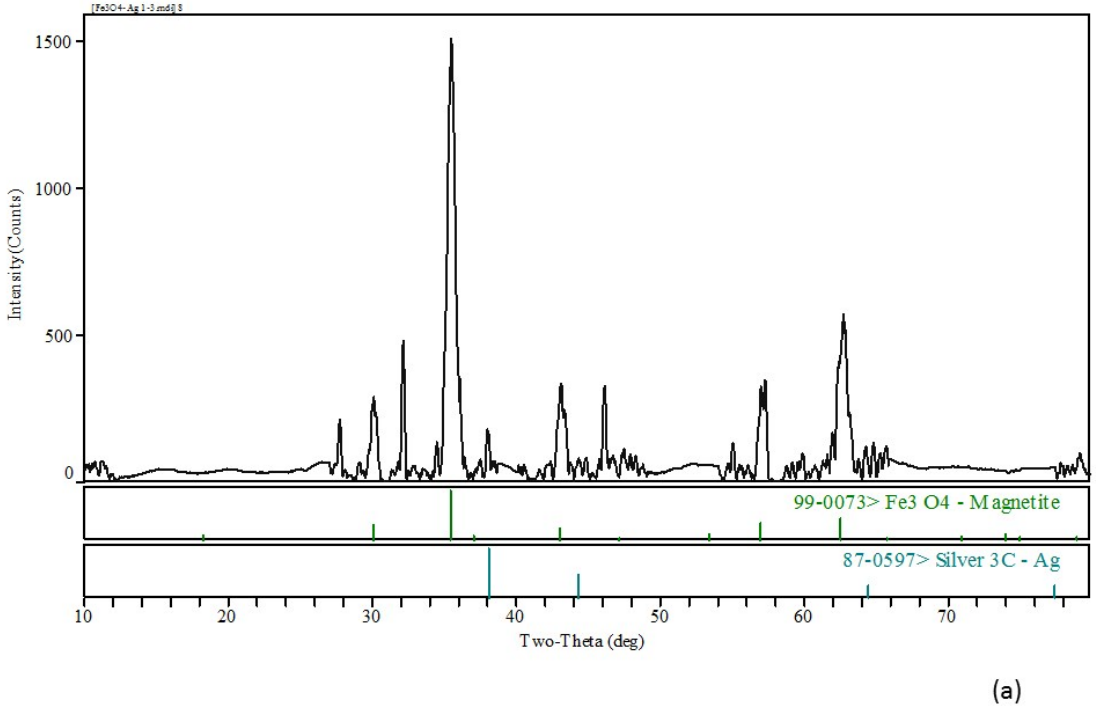
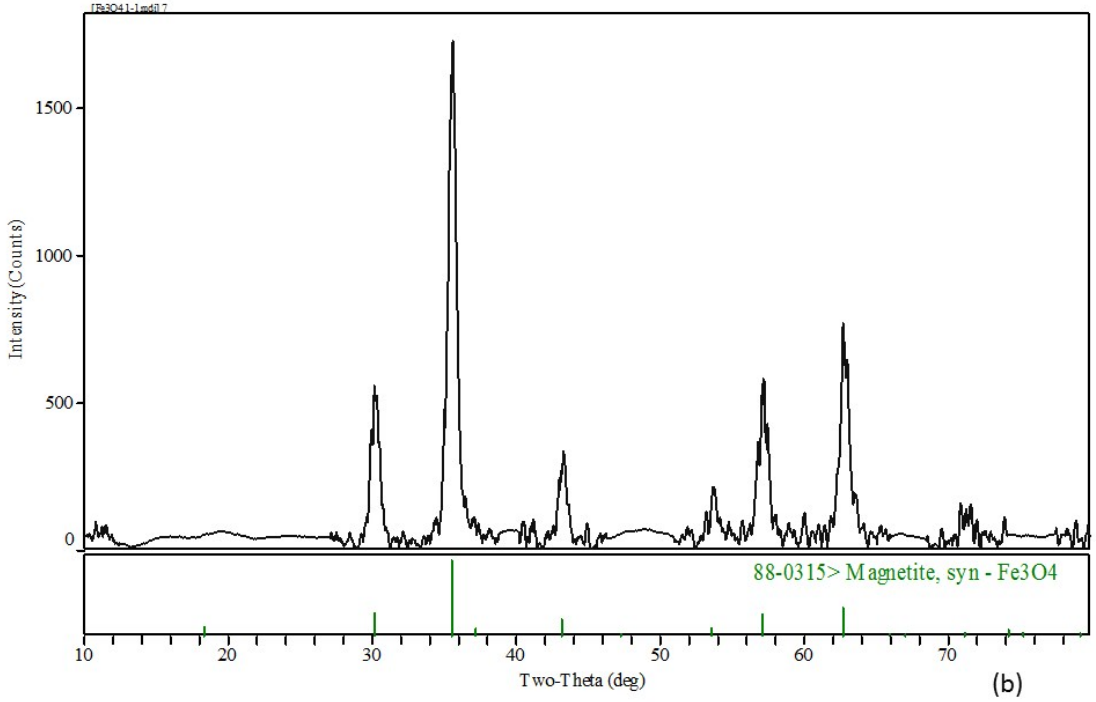
Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Information



(a)



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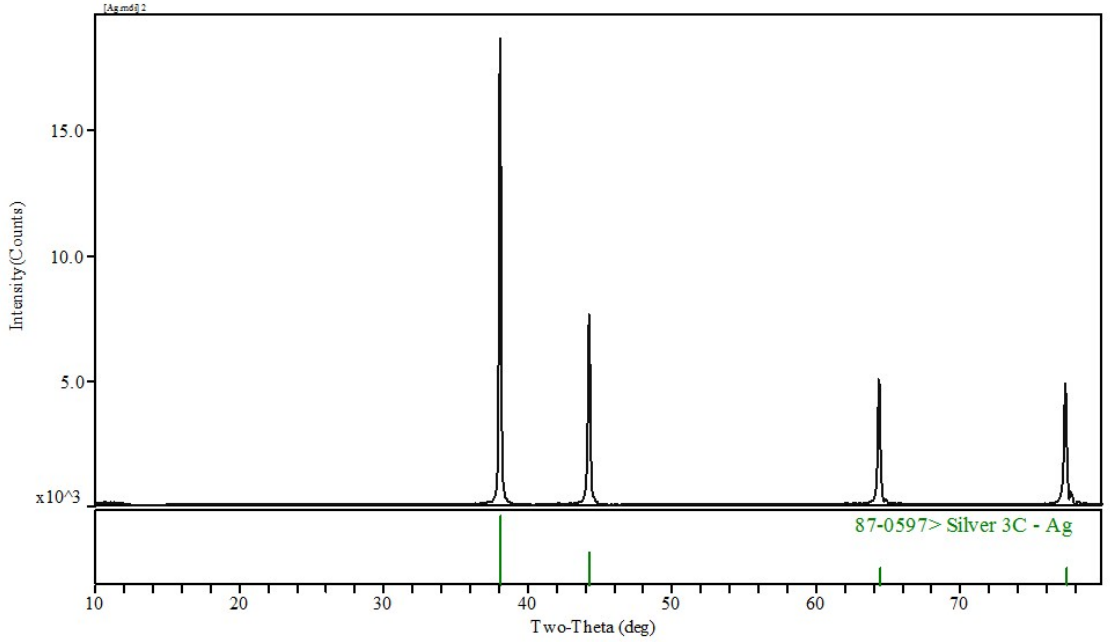
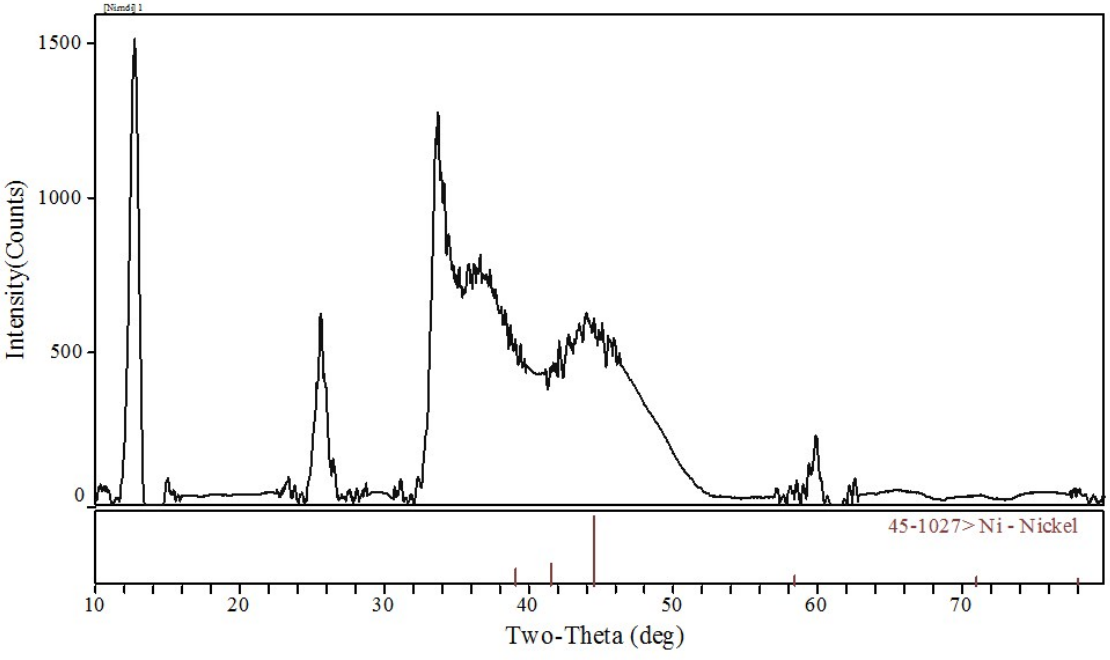


(c)



(d)

Figure. S1: XRD pattern of (a) Fe_3O_4@Ag nanocomposite, (b) Fe_3O_4, (c) Ag and (d) Ni nanoparticle

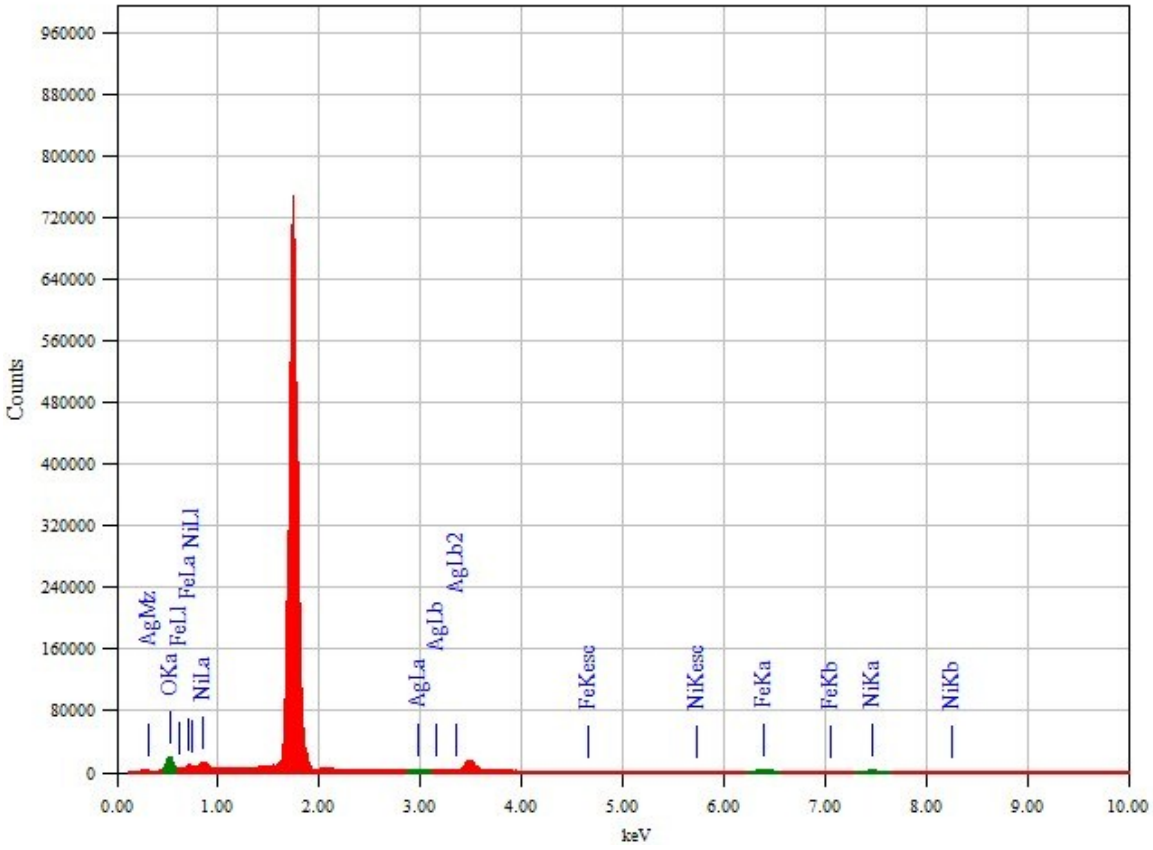


Figure S2: EDS spectrum of Fe_3O_4@Ag@Ni nanocomposite

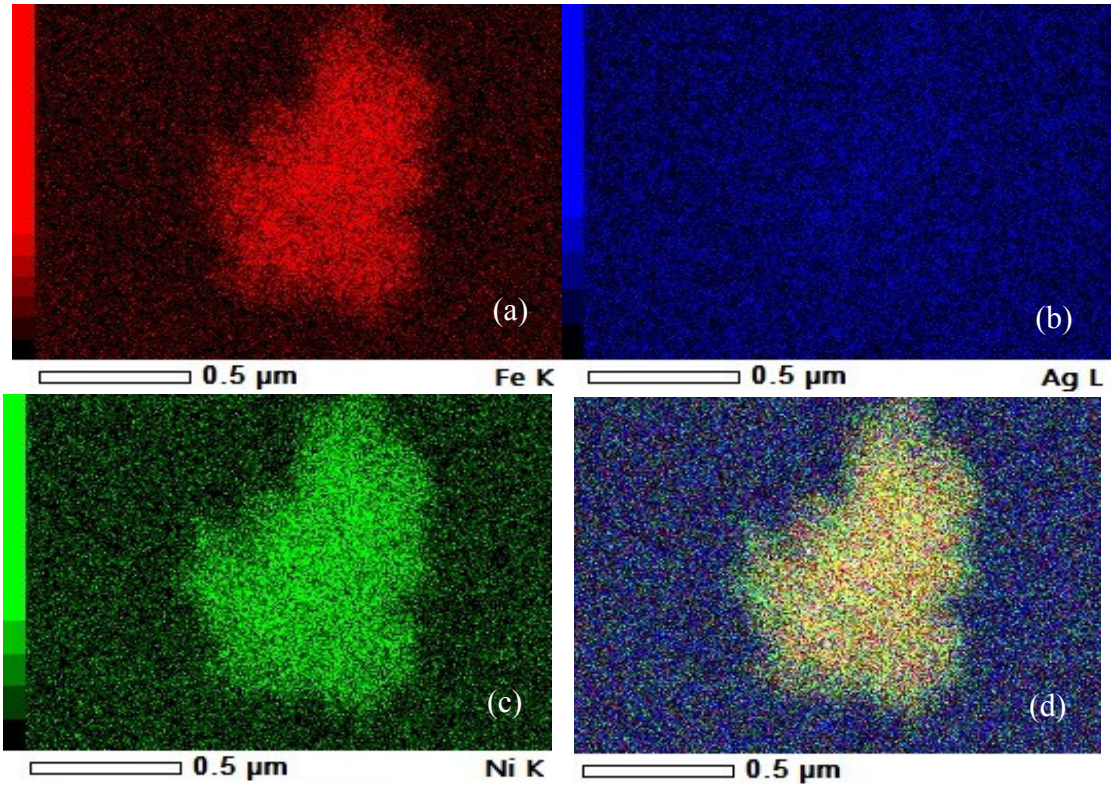


Fig. S3: EDS mapping of Fe_3O_4@Ag@Ni nanocomposite surface with (a) Fe, (b) Ag, (c) Ni, and (d) Overlap

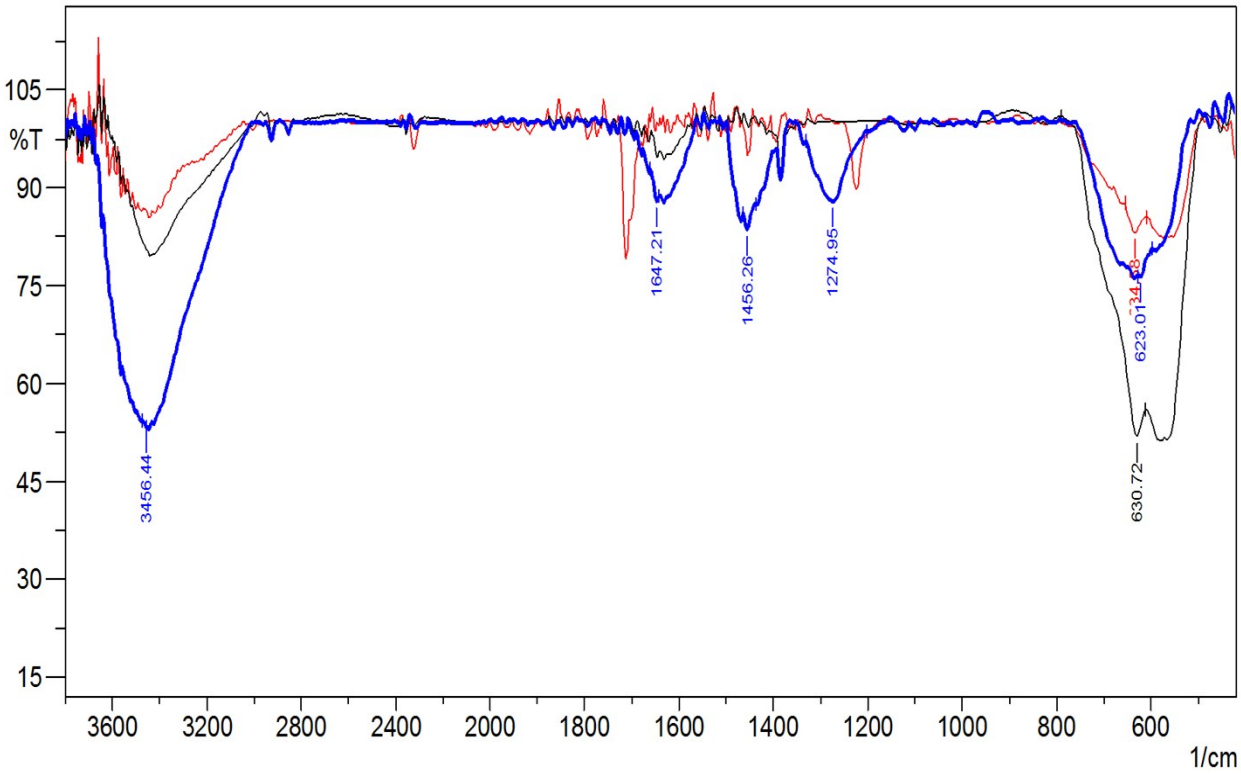


Fig. S4: FTIR Spectra of Fe_3O_4(red), Fe_3O_4@Ag (black) and Fe_3O_4@Ag@Ni nanocomposite (blue)

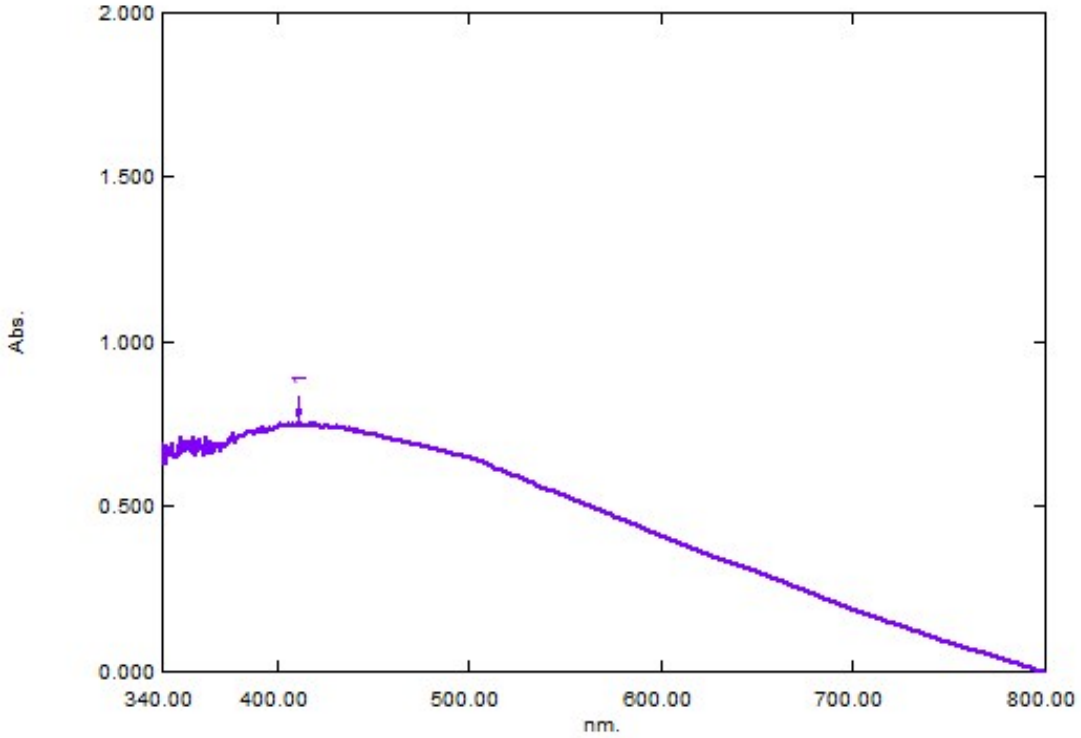


Fig. S5: UV-Visible spectrum of Fe_3O_4@Ag@Ni nanocomposite

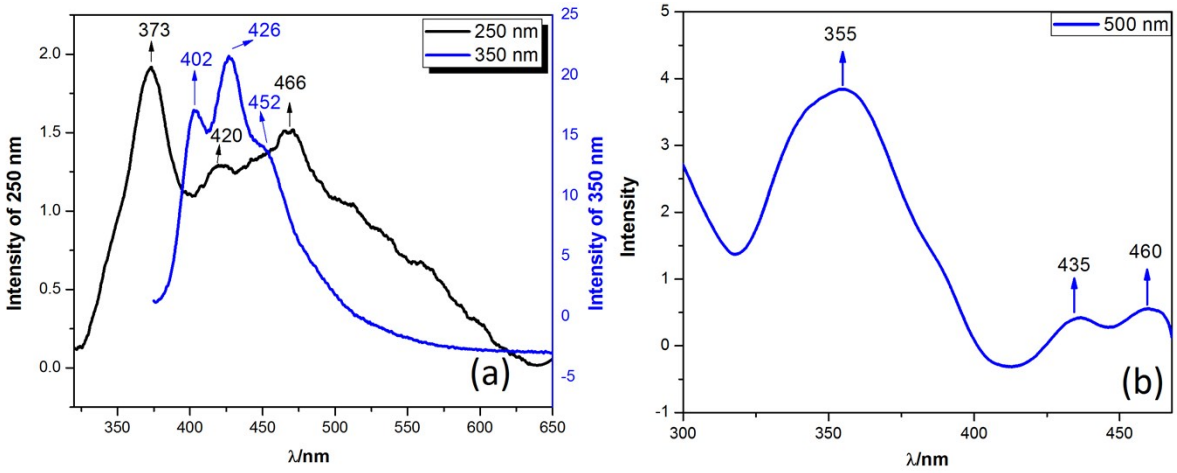


Fig. S6: (a) PL and (b) PLE spectrum of Fe_3O_4@Ag nanocomposite

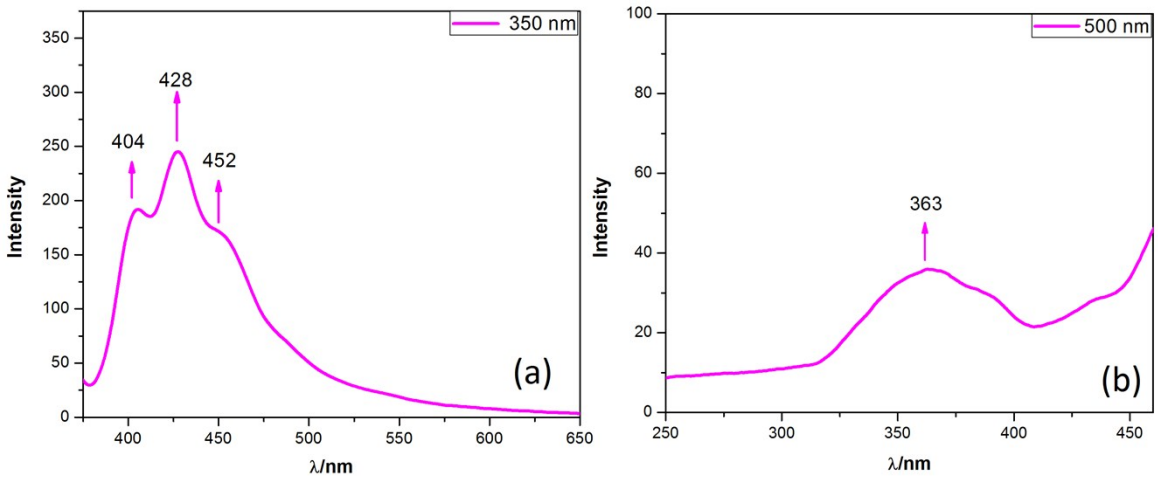


Fig. S7: (a) PL and (b) PLE spectrum of Fe_3O_4 nanoparticle

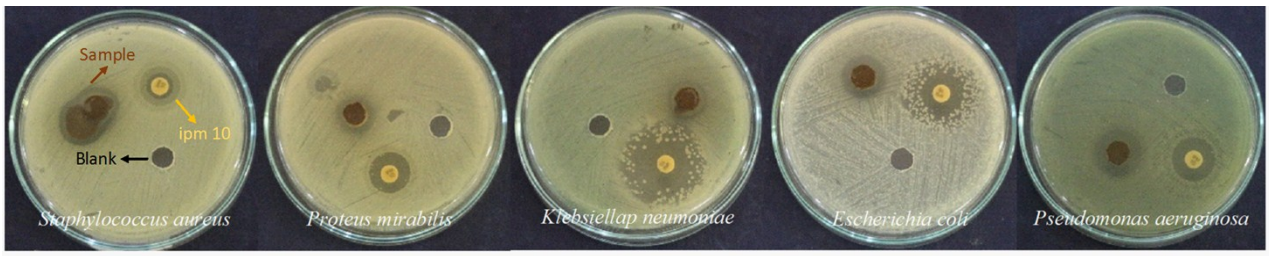


Fig. S8: Antibacterial properties of Fe_3O_4@Ag@Ni nanocomposite

Table S1: Elemental composition of Fe_3O_4@Ag@Ni nanocomposite from EDS

Element	(keV)	Mass%	Sigma	Atom%	K
O K	0.525	37.52	0.15	68.34	48.0078
Fe K	6.398	28.95	0.25	15.11	25.0339
Ni K	7.471	33.12	0.36	16.44	26.6642
Ag L	2.983	0.42	0.11	0.11	0.2941
Total		100		100	

Table S2: PL and PLE peaks maxima of synthesized Fe_3O_4@Ag@Ni, Fe_3O_4@Ag and Fe_3O_4 nanoparticles

Sample	Method	Excitation or monitor Wavelength/nm	Peaks Observed at Wavelength/nm
Fe_3O_4@Ag@Ni	PL	340	380, 397, 425 and 454
		350	380, 404, 430 and 455
		460	502
	PLE	500	358, 433 and 463
		550	280, 354 and 384
Fe_3O_4@Ag	PL	250	373, 420 and 466
		350	402, 435 and 452
	PLE	500	355, 435 and 460
Fe_3O_4	PL	350	404, 428 and 452
	PLE	500	363