Supplementary Information (SI) for RSC Advances.

Green tea capped magnetite nanoparticles for selective and sensitive recognition of Ag^{+}

Ankita Doi,[a] Mainak Ganguly [b]* , and Priyanka Sharma[b]

[a]Department of Biosciences, Manipal University Jaipur, Jaipur, 303007, Rajasthan, India

[b]Department of Chemistry, Manipal University Jaipur, Jaipur, 303007, Rajasthan, India

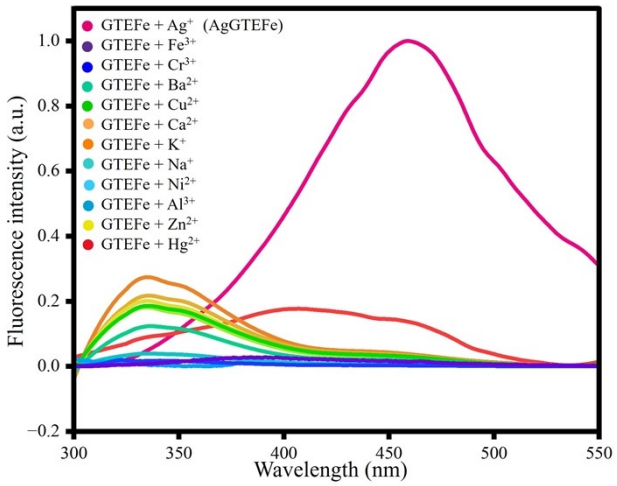

Figure S1: Fluorescence spectra of GTEFe in the presence of different metal ions.

λ_{ex} 290 nm and [metal ion= 10^{-3} M]

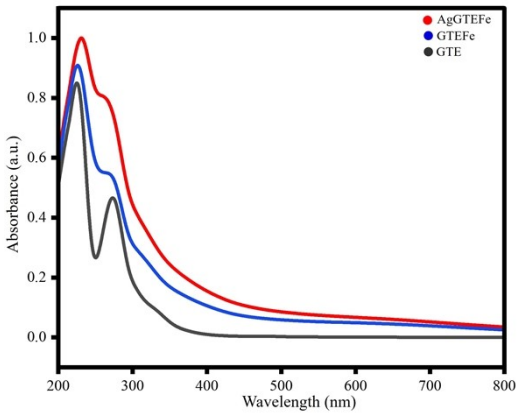

Figure S2: UV-Vis spectrum of GTE, GTEFe, AgGTEFe. GTE λ_{max} =274, GTEFe λ_{max}=270, and AgGTEFe λ_{max}=264 nm

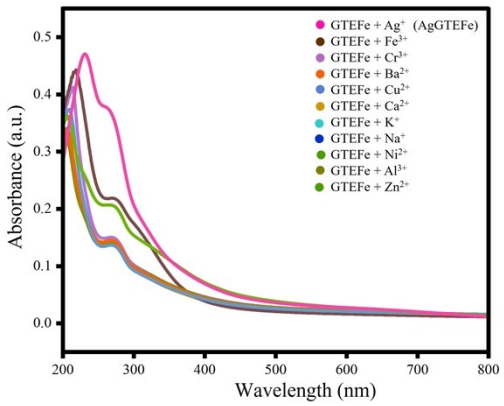

Figure S3: UV-Vis spectra of GTEFe in the presence of different metal ions

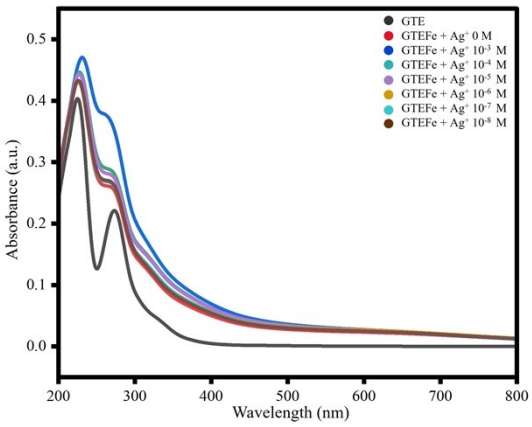

Figure S4: UV-Vis spectrum with GTE, GTEFe with [Ag^+]

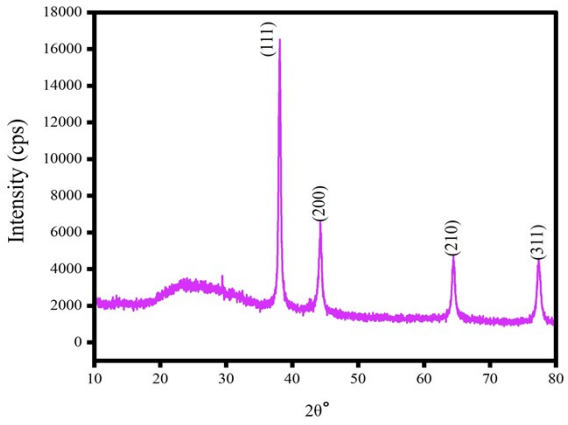

Figure S5: XRD plot of AgGTEFe

Table S1: Detection of Ag^+ with physico-chemical properties and applications

S. no.	Response type	Percentage of organic solvent in working solution	λ_{ex} / λ_{em} (nm)	LOD of [Ag^+]	Linear detection range (concentration)	Applications
1.	Quenching fluorescence	100% aqueous solution[1]	598/622 nm	5 ×10^{-15} M	5 × 10^{-15} to 8 × 10^{-13} M	NA
2.	Enhancement Fluorescence	Semicarbazide[2]	290/ 420 nm	7. 7 μM	10^{-3} M to 10^{-7} M	Real water analysis (rainwater, tap, drinking, and Ganga)
2.	Enhancement fluorescence	3% of OPDA (, o-phenylenediamine) [3]	365/568 nm	60 nM	60 nM to 60 μM	Sewage water
3.	Quenching fluorescence	50% DMSO[4]	310/527 nm	6.37 × 10^{-5} M	0–20 μM	NA
4.	Quenching fluorescence	100% THF[5]	435/530 nm	5 × 10^{-7} M	0.1 to 4.2 equiv.	NA
5.	Quenching fluorescence	10% Ethanol[6]	619/760 nm	3 × 10^{-8} M	-	Tap and lake water
6.	Quenching fluorescence	100% aqueous solution[7]	307/358 nm	2.70 × 10^{-6} M	0 to 24 μM	NA
7.	Enhancement fluorescence	50% MeOH[8]	370/400 nm	1.28 × 10^{-10} M	-	Ground, tap water, andlive cells
8.	Enhancement fluorescence	20% Ethanol[9]	530/584 nm	1.29 × 10^{-8} M	0.050-0.54 ppm	Sanitizer gel and fabric softener
9.	Enhancement fluorescence	100% Methanol[10]	520/576 nm	2.3 × 10^{-7} M	-	NA
10.	Enhancement fluorescence	100% aqueous solution[11]	330/506 nm	1.07 × 10^{-7} M	0- 107 nM	NA
11.	Ratiometric	100% aqueous solution[12]	405/481	Not	-	Live cells

			and 565 nm	measured		
12.	Ratiometric	70% MeOH[13]	405/481 and 565 nm	6.29×10^{-6} M	-	NA
13.	Ratiometric	100% Methanol[14]	470/510 and 525 nm	1.5×10^{-6} M	-	NA
14.	Ratiometric	100% THF[15]	480/630 and 671 nm	Not measured	-	NA
15.	Ratiometric	100% aqueous solution[16]	450/500 and 535 nm	3.7×10^{-9} M	0–180 nM	Tap and ground water
16.	Enhancement fluorescence	100% water (present work)	290/400 and 467 nm	1.0×10^{-7} M	10^{-4} – 10^{-7} M	

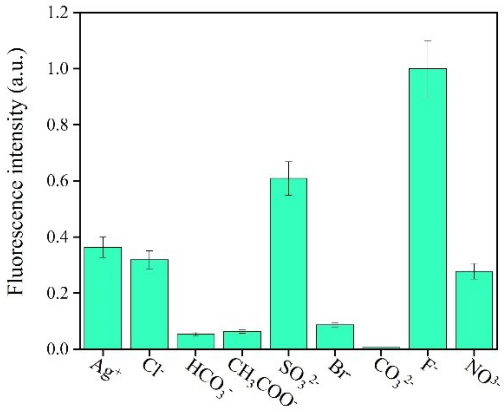

Figure S6: Effect of counter anions of sodium salts on the fluorescence of AgGTEFe.

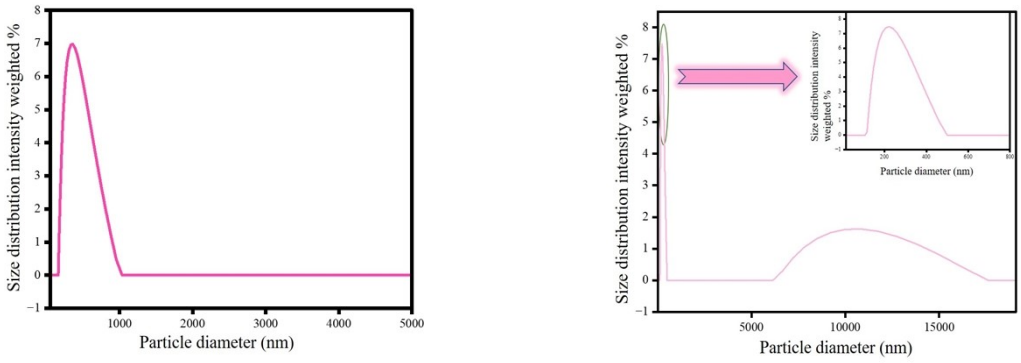

Figure S7: (a) DLS spectra of GTFe (b) DLS spectra of of AgGTEFe.

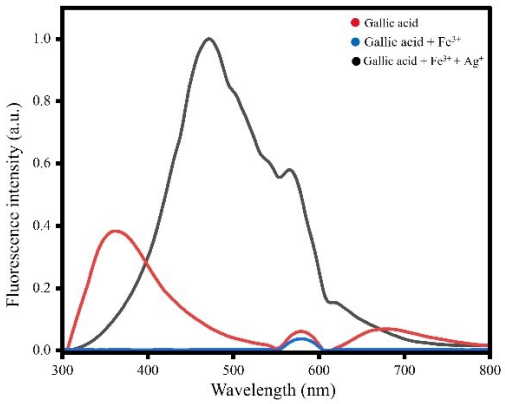

Figure S8: Fluorescence spectra of gallic acid, gallic acid + Fe^{3+}, and gallic acid + Fe^{3+} + Ag^{+}

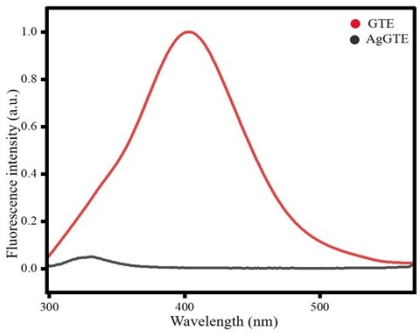

Figure S9: Fluorescence spectra of GTE and GTE + Ag^{+}

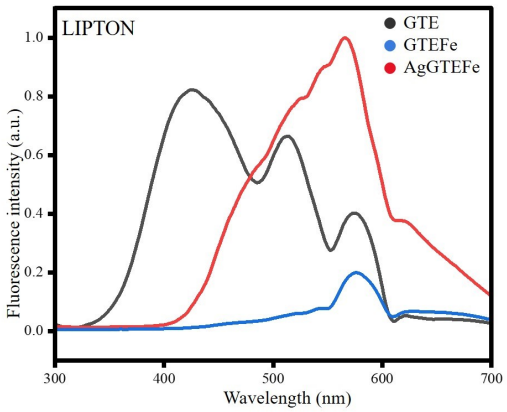

Figure S 10: Fluorescence intensity of LIPTON GTE, GTEFe, and AgGTEFe

Supporting references

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