Supporting Information

Biogenic Silver Nanoparticles/Mg-Al Layered Double Hydroxides with Peroxidase-like Activity for Mercury Detection and Antibacterial Activity

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Table S1. GC-MS analysis of phytochemicals.

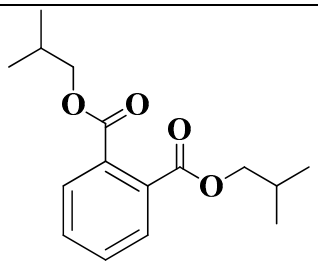
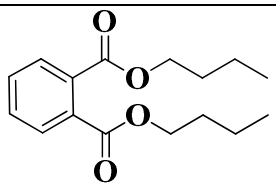
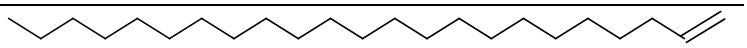
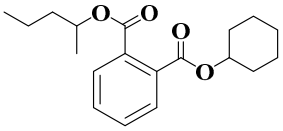
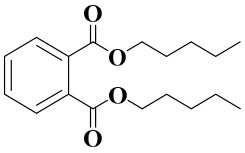
Sl. No.	RT (min)	Area (%)	Compound
1.	8.912	8.08	 Diisobutyl phthalate
2.	8.857	23.56	 Dibutyl phthalate
3.	8.431	4.46	 1-Tricosene
4.	9.132	4.85	 Cyclohexyl pentan-2-yl phthalate
5.	9.180	5.36	 Dipentyl phthalate

Table S2. Qualitative analysis of phytochemicals [2].

Sl. No.	Test	Observation	Inference
1.	**Test for saponins** Plant extract (aq.) shaken with water in the test tube	Development of stable foam	Saponins are present
2.	**Test for alkaloids** Plant extract + few drops of Mayer's reagent	Formation of precipitate	Alkaloids are present
3.	**Test for terpenoids** Plant extract + few Drops of conc. H_2SO_4	Formation of the pale yellow layer down	Terpenoids are present
4.	**Test for glycosides and sterols** Plant extract + 2 mL chloroform + Conc. H_2SO_4	Reddish brown interface formation	Glycosides and sterols are present
5.	**Test for sugars** Plant extract + 2ml distilled water + Molish's reagent	Purple violet ring in interference	Sugars are present

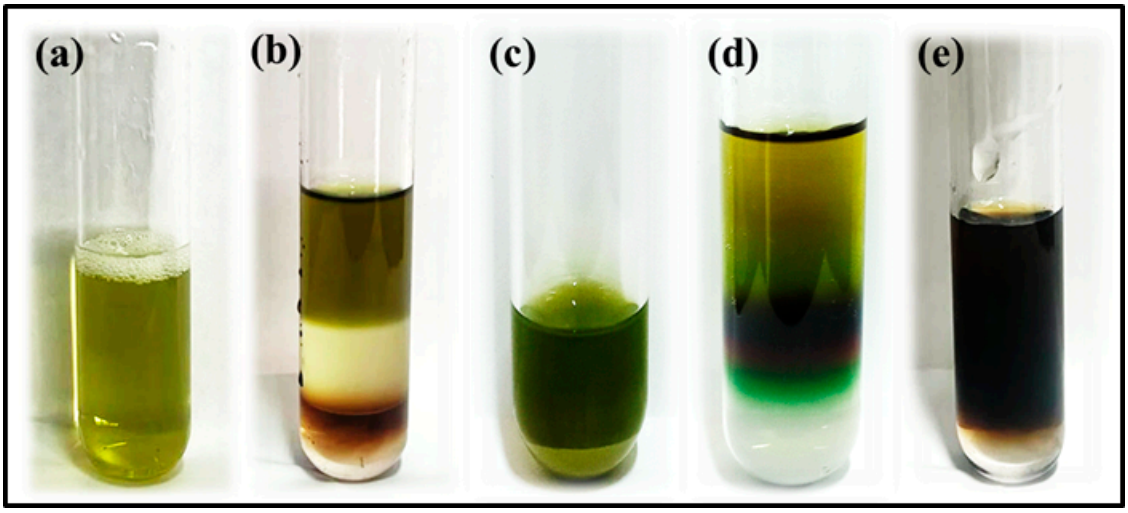


Figure S1. Images of the test results of qualitative analysis of phytochemicals [1].

Table S3. Relative activity (%) of the Mg-Al-OH@TGLE-AgNPs nanocatalyst with respect to pH, catalyst loading, OPD and H_2O_2 concentrations [3].

pH	3	4	5	6	7	8
Relative activity (%)	61.738	100	38.525	20.863	3.725	1.238
Catalyst loading (wt% Ag)	0	0.53	0.71	0.88	1.06	1.24
Relative activity (%)	1.638	38.488	73.863	79.475	96.175	100
OPD concentration (mM)	0	0.024	0.04	0.06	0.08	0.1
Relative activity (%)	4.075	40.063	48.925	61.063	64.938	100
H_2O_2 concentration (M)	0	0.009	0.016	0.024	0.032	0.040
Relative activity (%)	1.825	68.788	78.113	81.188	85.200	100

References

1. Vyas, P.; Yadav, D. K.; Khandelwal, P., Tectona grandis (teak)–A review on its phytochemical and therapeutic potential. *Nat. Prod. Res.* **2019,** 33, (16), 2338-2354.
2. Khatri, P.; Rana, J.; Jamdagni, P.; Sindhu, A., Phytochemical screening, GC-MS and FT-IR analysis of methanolic extract leaves of Elettaria cardamomum. *Int. J. Res.* **2017,** 5, (2), 213-224.
3. Antony, A. M.; Yelamaggad, C.; Patil, S. A., Palladium nanoparticles decorated on functionalized graphitic carbon nitride as an efficient and retrievable nanocatalyst for organic dye degradation and hydrogen peroxide sensing. *Mater. Chem. Phys.* **2023,** 297, 127370.