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Supplementary Information

Evaluation of the multifunctional activity of silver bionanocomposites in environment remediation and inhibition of growth of multidrug-resistant pathogens

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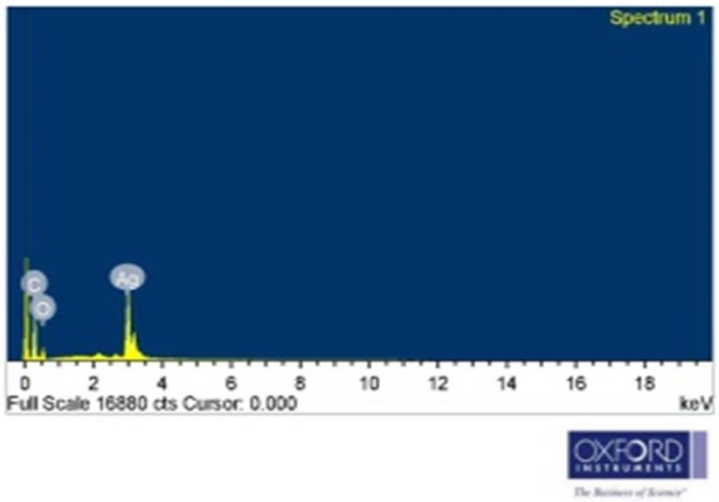
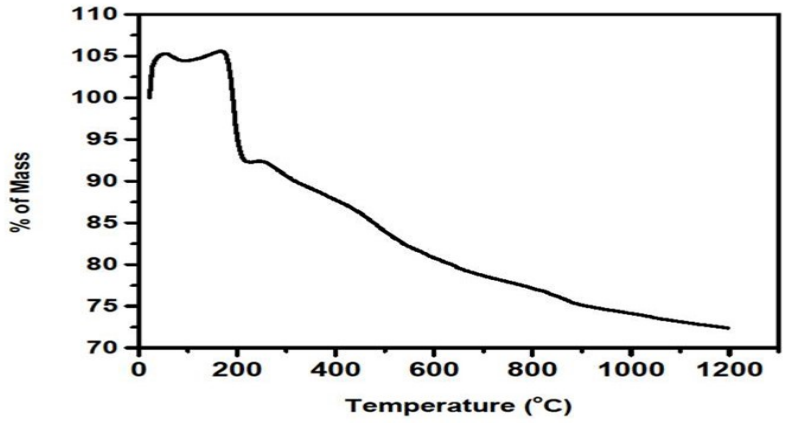


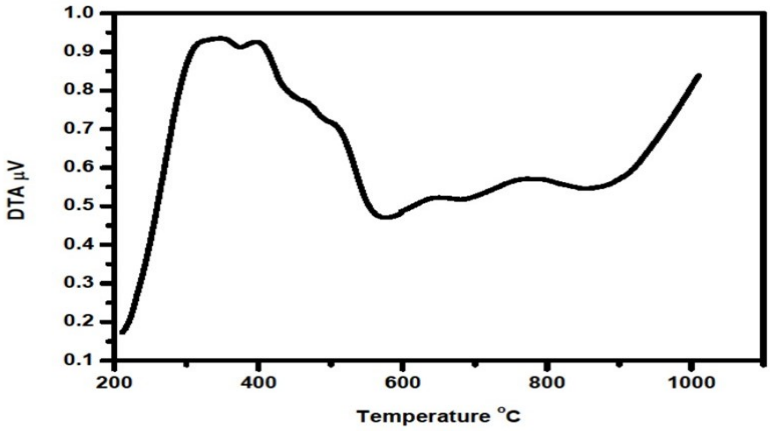
Elements	Weight%	Atomic%
C K	27.35	34.17

O K	**36.90**	**54.36**
Ag L	**35.75**	**11.47**
Totals	**100**	

Fig. S1 EDX spectra and elemental weight% and atomic% of cellulose-supported Ag bionanocomposites.



[a]



[b]

Fig. S2 TGA [a] and DTA [b] thermogram of cellulose-supported Ag bionanocomposites.

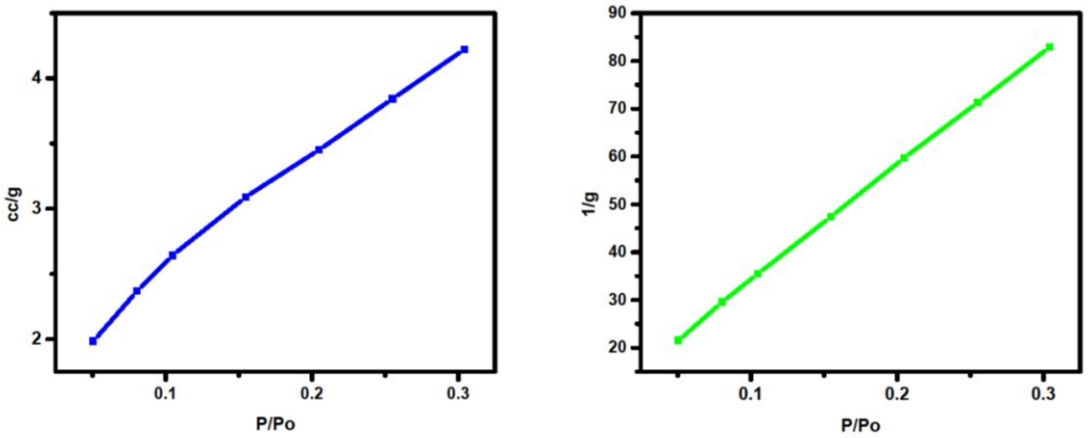


Fig. S3 Nitrogen adsorption-desorption BET isotherms for the cellulose-supported Ag binanocomposites.

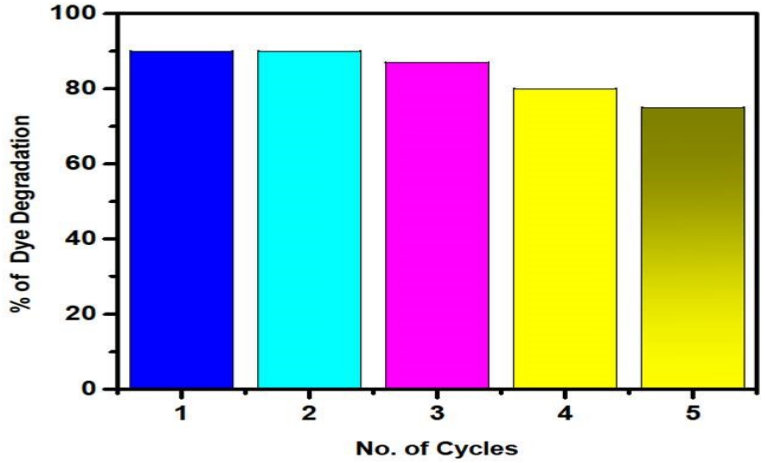


Fig. S4 Reusability of the AGC NCs in the degradation of Brilliant blue FCF.

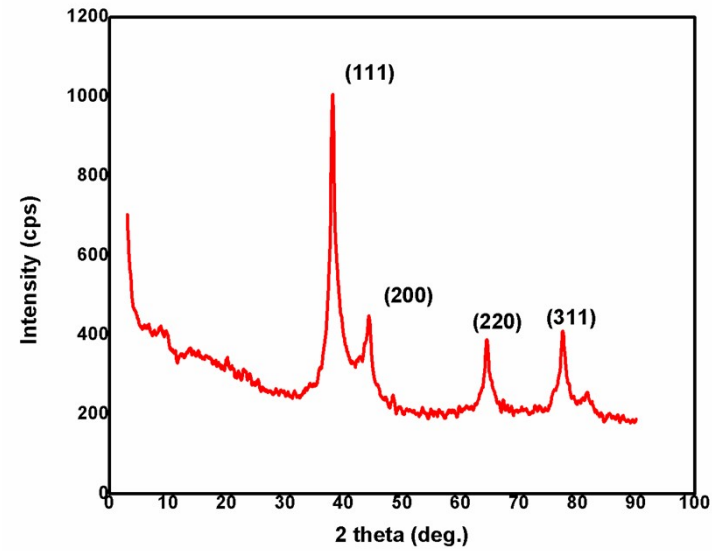


Fig. S5 XRD pattern of AGC NCs after five catalytic cycles.

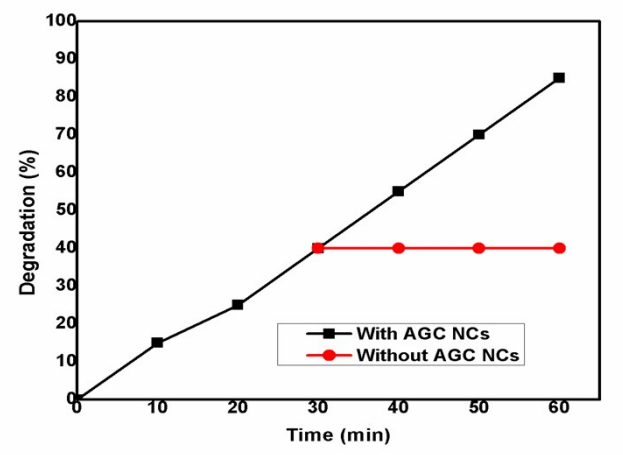


Fig. S6 Heterogeneity test of the AGC NCs in the degradation of 2-nitroaniline.

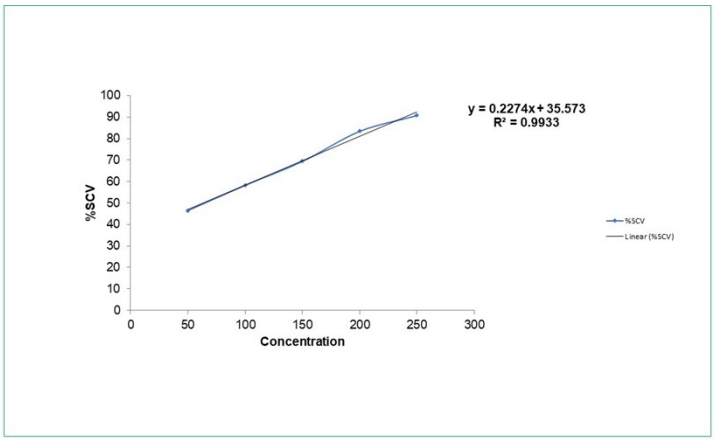


Fig. S7 Antioxidant activity of cellulose-supported Ag bionanocomposites.

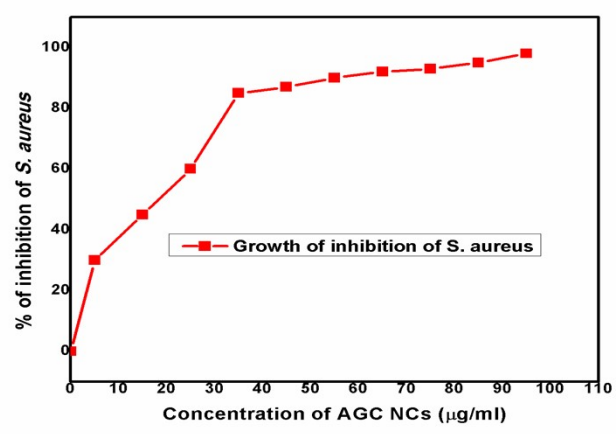
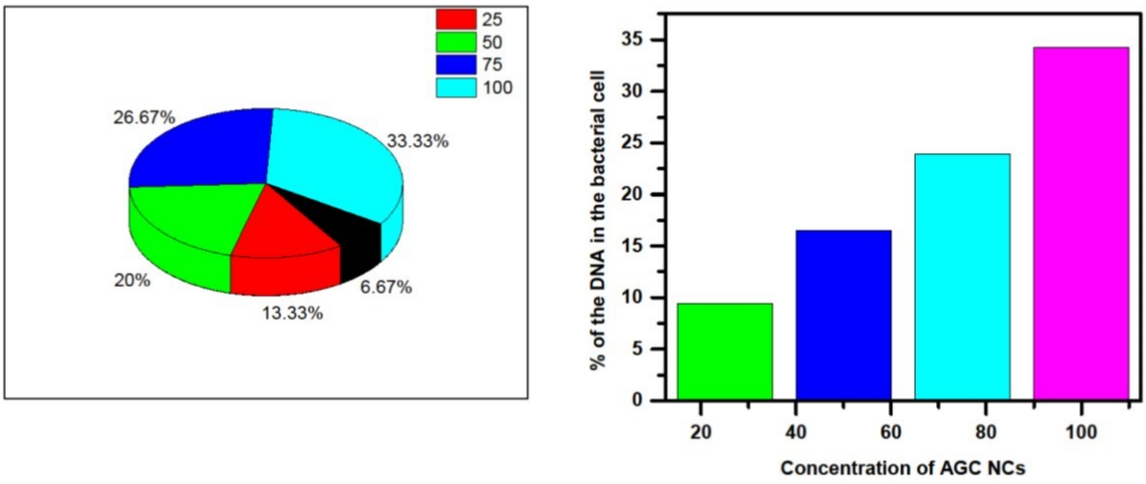


Fig. S8 Growth of inhibition of *S. aureus* at different concentrations of AGC NCs.



[a] **[b]**

Fig. S9 ROS generation [a] and percentage of DNA [b] in the *Klebsiella pneumoniae* cell in the presence of AGC NCs.

Table S1 Comparison of photocatalytic properties of AGC NCs with reported catalyst in literature

SI No.	Catalyst	Dye	Results	References
1	*Alpinia nigra* fruits mediated Ag NPs	Orange G	Degradation up to 79.9% in 90 min	1
2	AGC NCs	Orange G	Degradation up to 85% in 60 min	Our Study
3	GO/CNTs/Ag nanohybrids	Phenol Red	Degradation up to 81.4% in 120 min under UV irradiation	2
4	AGC NCs	Phenol Red	Degradation up to 84.4% in 60 min under solar irradiation	Our Study
5		Brilliant Blue FCF	Degradation up to 60% in 100 min in presence of $NaBH_4$	3
6	AGC NCs	Brilliant Blue	Degradation up	Our study

		FCF	to 90% in 60 min without use of any reducing agents	

Table S2 MIC of AGC NCs

Bacterial strains	**MIC(µg/ml)**
S. aureus	35
E. coli	15
B. subtilis	30
K. pneumonia	15
C. albicans	15

References

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2 A. Singh, S. Chahal, H. Dahiya, A. Goswami, and S. Nain, *Mater. Express,* 2021, **11,** 936-946(11).

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