

Supplementary information

Title

Green-Based Approach to Synthesize Silver Nanoparticles Using the Fungal Endophyte *Penicillium oxalicum* and Their Antimicrobial, Antioxidant, and *In Vitro* Anticancer Potential

Authors

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Table S1. FTIR analysis of POAgNPs

Wavenumber	Functional group	Types of Vibration
3295.71	Hydroxyl group	OH stretch
1635.67	Alkenyl	C=C stretch
1541.60	Aliphatic nitro compound	
1043.84	Aliphatic fluoro compounds or Aromatic or Primary amine	C-F stretch or C-H in plane bend or CN stretch
516.36	Aliphatic iodo compounds	C-I stretch

Table S2. Representation of calculated values for MIC₂₅, MIC₅₀, MIC₇₅ determined for POAgNPs and positive control against pathogenic bacterial and fungal strains

S. No	Samples	Minimum inhibitory concentration of POAgNPs (µg/ml)																	
		MIC against bacterial strain						MIC against fungal strain											
		<i>E. coli</i>			<i>S. aureus</i>			<i>A. niger</i>			<i>A. flavus</i>			<i>A. luchuensis</i>			<i>P. albicans</i>		
		MIC ₂₅	MIC ₅₀	MIC ₇₅	MIC ₂₅	MIC ₅₀	MIC ₇₅	MIC ₂₅	MIC ₅₀	MIC ₇₅	MIC ₂₅	MIC ₅₀	MIC ₇₅	MIC ₂₅	MIC ₅₀	MIC ₇₅	MIC ₂₅	MIC ₅₀	MIC ₇₅
1.	POAgNPs	8.71± 0.217	12.36± 0.099	81.85± 0.453	14.41± 0.011	20.97± 0.008	61.61± 1.452	26.96± 0.021	37.69± 0.050	48.42± 0.079	7.72± 0.032	67.72± 0.193	186.57± 0.152	13.17± 0.109	20.94± 0.116	49.08± 0.332	18.09± 0.050	34.68 ± 0.006	188.22± 0.145
2.	Amphotericin B (Positive control)	-	-	-	-	-	-	10.07± 0.021	19.29± 0.006	48.43± 0.107	16.09± 0.218	22.86± 0.123	45.80± 0.097	7.38± 0.009	9.82 ± 0.009	12.26 ± 0.010	16.12 ± 0.074	21.79 ± 0.195	95.92 ± 0.424
3.	Streptomycin (Positive control)	22.20± 0.090	61.08± 0.392	90.12± 0.234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.	Vancomycin (Positive control)	-	-	-	14.70± 0.123	36.95± 0.177	90.47± 0.07	-	-	-	-	-	-	-	-	-	-	-	-

Table S3. Cytotoxic activity of POAgNPs against breast cancer cells and respective IC₃₀, IC₅₀ and IC₇₀ values

	Breast cancer cells	
	MDA-MB-231	MCF-7
IC₃₀ (µg/mL)	8.36±0.404	14.87±0.81
IC₅₀ (µg/mL)	20.080±0.761	40.038±1.022
IC₇₀ (µg/mL)	58.658±6.57	104.24±5.85

Table S4. List of primers alongwith their sequences used in qRT-PCR analysis

Genes	Forward (FP) and Reverse (RP) Primers
<i>β-ACTIN</i>	FP- CAGGAATTGTTACGGTTCCTAA RP- CCTGAATTA ACTTGTCCCGTGA
<i>BAX</i>	FP- CCAAGAAGCTGAGCGAGTGT RP- CCGGAGGAAGTCCAATGTC
<i>BCL-2</i>	FP- GGGTATGAAGGACCTGTATTGG RP- CATGCTGATGTCTCTGGAATCT
<i>P21</i>	FP- ATGAGTTGGGAGGAGGCAG RP- GGCGTTTGGAGTGGTAGAA
<i>P53</i>	FP- CCATCTACAAGCAGTCACAG RP- TCATCCAATACTCCACACG

Figure legends:

Figure S1. Antibacterial activity of POAgNPs represented through zone of inhibition against pathogenic bacterial strains.

Figure S2. Representation of POAgNPs induced growth inhibition of pathogenic fungal strains.

Figure S3. Relative % wound closure induced by POAgNPs against **A.** MDA-MB-231 cells and **B.** MCF-7 cells after 12 hours and 24 hours. p- value was calculated by comparing means \pm SD of percentage of relative wound closure in POAgNPs treated groups with control groups.

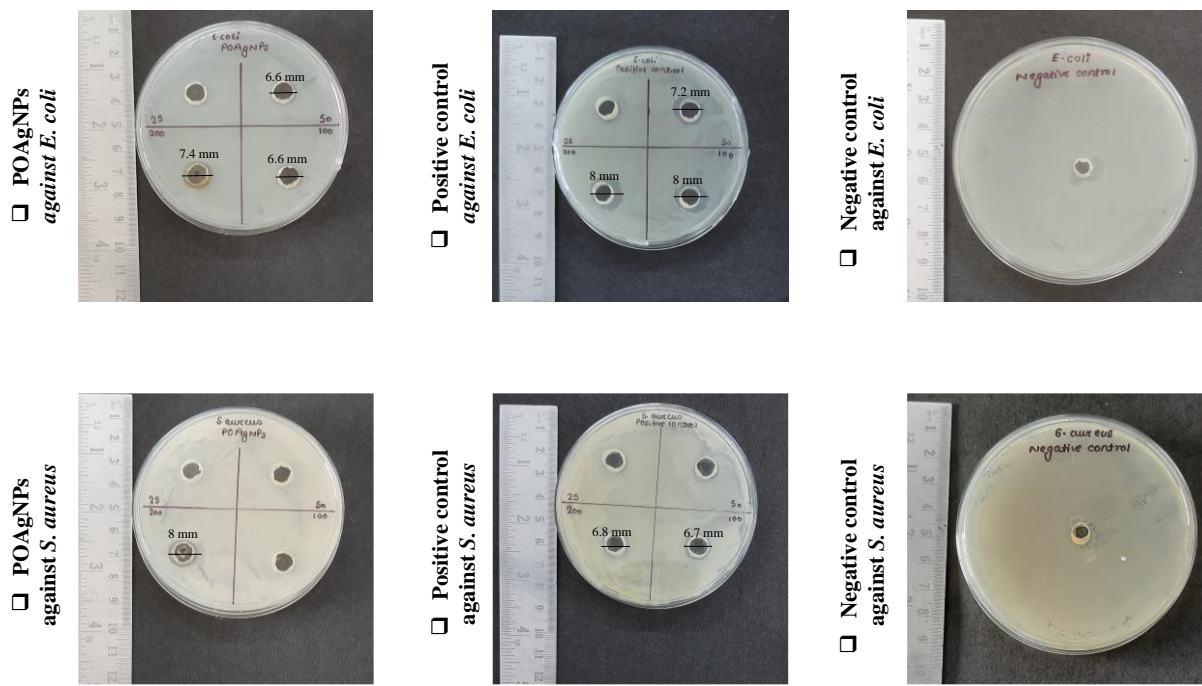


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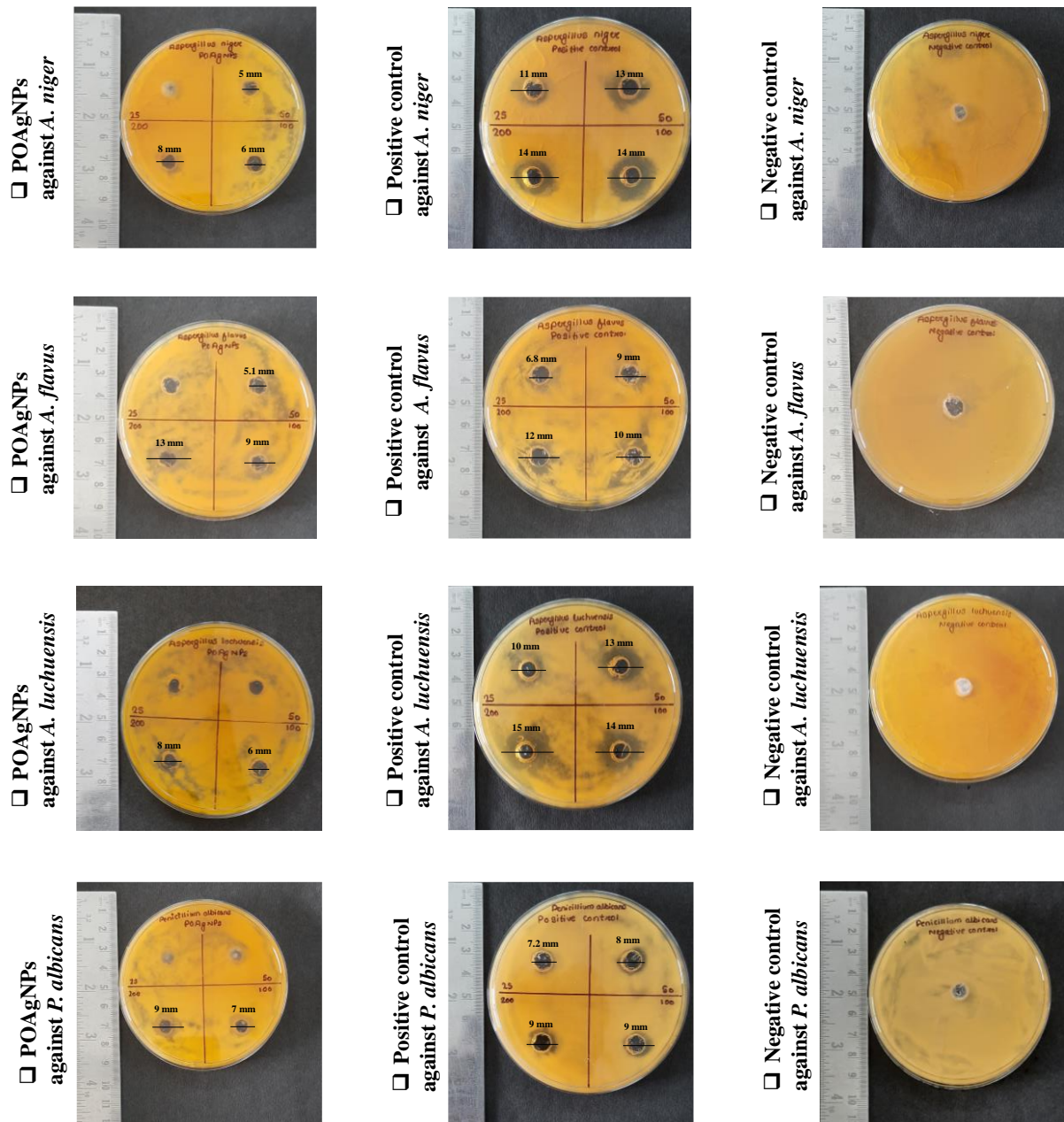


Figure S2. Representation of POAgNPs induced growth inhibition against pathogenic fungal strains.

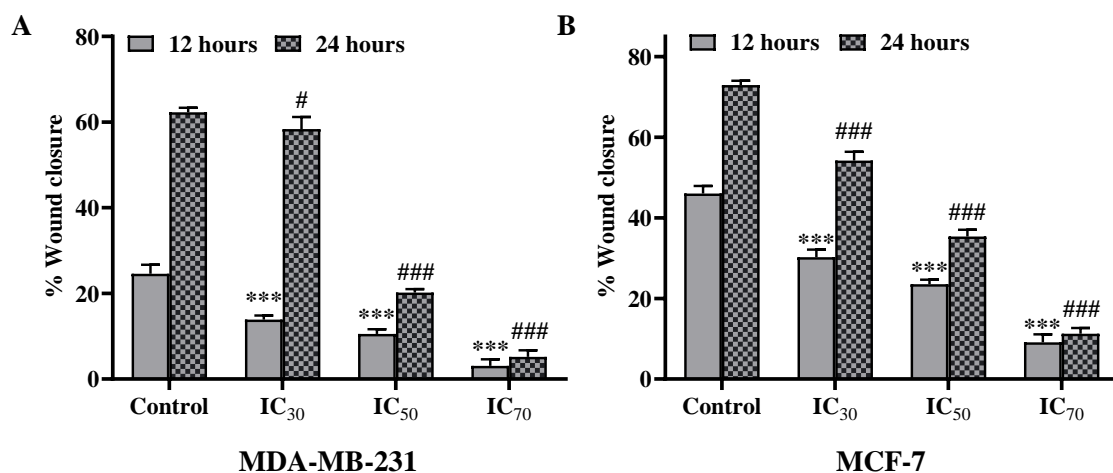


Figure S3. Relative % wound closure induced by POAgNPs against **A.** MDA-MB-231 cells and **B.** MCF-7 cells after 12 hours and 24 hours. p- value was calculated by comparing means \pm SD of percentage of relative wound closure in POAgNPs treated groups with control groups, using one way ANOVA followed by Tukey to determine statistical significance, which are follows; *** $p \leq 0.001$; ** $p \leq 0.002$; * $p \leq 0.033$ for 12 hours and ### $p \leq 0.0015$; ## $p \leq 0.002$; # $p \leq 0.033$ for 24 hours