Electronic Supplementary Information

1. Supplementary methods:

1.1 Bacterial strains, their maintenance, plant materials and chemicals

Clinical isolates of *P. aeruginosa* (ATCC 27853), *E. coli* (ATCC 25922), *S. aureus* (ATCC 95923) were obtained from culture collection of J.N.M.C.H., Aligarh Mulim University, Aligarh and *Klebsiella pneumoniae* sub sp. pneumoniae (ATCC 700603) was procured from NCCS, Pune, India. Bacterial isolates were sub-cultured in Luria Bertani (LB) broth (HiMedia, India) and Brain Heart Infusion (BHI) broth (HiMedia, India) and maintained on LB and BHI agar slants (1.8 %) at 4°C and were sub-cultured regularly. Leaves of *A. indica* were collected from trees planted in the Faculty of Agricultural Sciences, Aligarh Muslim University, Aligarh, India. Zinc (II) nitrate hexahydrate [Zn $(NO_3)_2.6H_2O$] used for the synthesis of ZnONPs, propidium iodide (PI), acridine orange (AO), and gentamicin discs (5 µg/disc) were purchased from Hi-Media laboratories, Mumbai, India. Triphenyl-2, 3, 5-tetrazolium chloride (TTC) was obtained from BDH Reagents and Chemicals, England. The fluorescent probe 2', 7'-dichlorofluorescin diacetate (DCFH-DA) was purchased from Sigma-Aldrich. Double distilled water (DDW) was used throughout the experiments.

1.2 Surface plasmon resonance (SPR), crystal size and functional group analysis

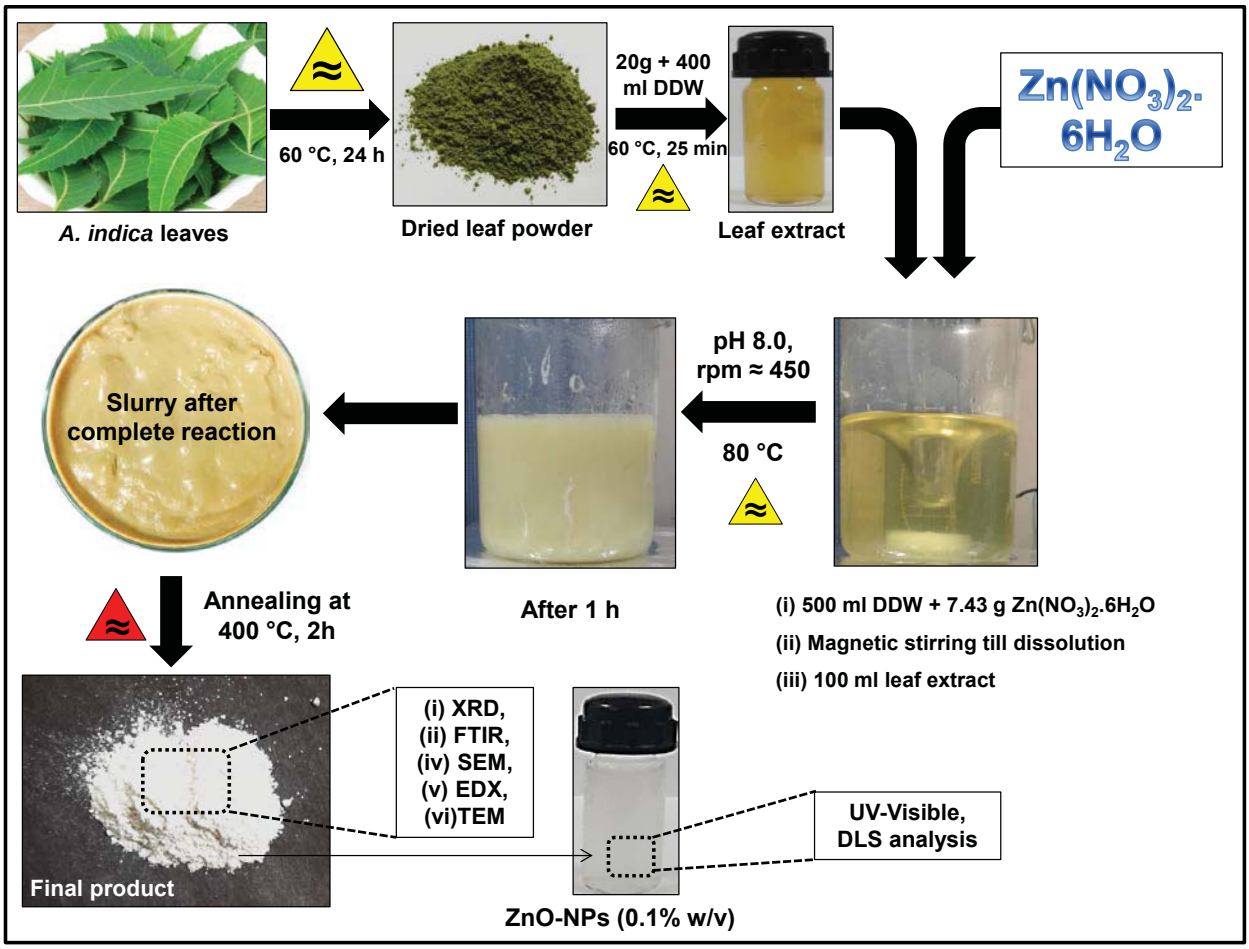
The dried powder of ZnONPs was dispersed in DDW (0.1% w/v) and the SPR was measured by UV-Vis spectrophotometer (GBC Scientific Equipments Pvt. Ltd., Australia) in the range of 300-700 nm with resolving power of 1 nm. Double distilled water was used as a blank. Crystallinity and average size of ZnONPs was determined by X-ray diffraction **(**XRD). The crystalline size of the ZnONPs was calculated following the Debye–Scherrer's equation: $D= 0.9\lambda/\beta\cos\theta$, Where, D is the crystal size of ZnONPs, λ is the wavelength of X-ray source used (1.541 Å), and β is the full-width-at-half maximum of the diffraction peak. The Fourier Transform Infra-Red (FTIR) spectroscopy was used to detect the functional groups of leaf extract involved in the reduction and capping of ZnONPs. Briefly, the air dried powder of *A. indica* foliage and ZnONPs were diluted with spectroscopic grade KBr (mass ratio of about 1:100) and the spectra were recorded in attenuated total reflectance (ATR) mode. FTIR measurements were carried out on Perkin Elmer FT-IR spectrometer Spectrum Two (Perkin Elmer Life and Analytical Sciences, CT,

USA) in the diffuse reflectance mode at a resolution of 4 cm^{-1} in KBr pellets in the range of 400 to 4,000 cm^{-1}.

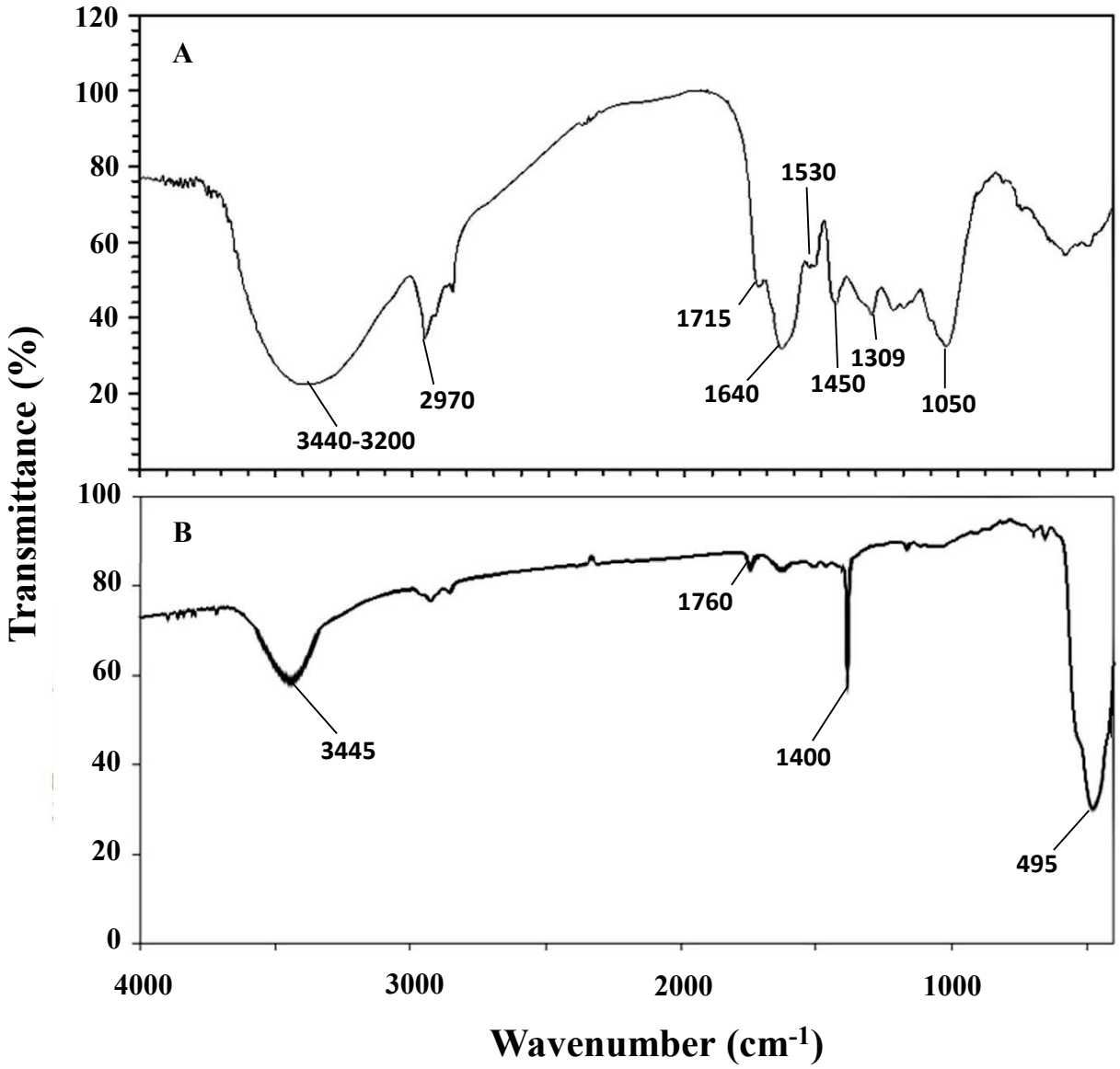
1.3 Surface morphology, shape, primary and secondary size of ZnONPs

The scanning electron microscopy (SEM) was used to determine the morphology of ZnONPs. For this, thin films of ZnONPs powder were prepared on a carbon coated copper grid in JEOL JSM-6510 SEM (JEOL, Tokyo, Japan) and visualized at an accelerating voltage of 15 kV. The Transmission Electron Microscopy (TEM) was employed to determine size and shape of ZnONPs using JEOL-2100 (JEOL, Tokyo, Japan) with an accelerating voltage of 200 kV. Samples for microscopy were prepared by dropping 10 µl of ZnONPs sample on a copper grid. Excess solution was removed by using a piece of soft filter paper. The copper grid was then dried for 6 h in an oven at 80°C and visualized under TEM. Dynamic light scattering (DLS) was performed on a ZetaSizer Nano-ZS90, Malvern, UK to determine the hydrodynamic sizes of the ZnONPs in aqueous suspension. The ζ-potential values of the NPs were determined and the values presented are the average of five readings.

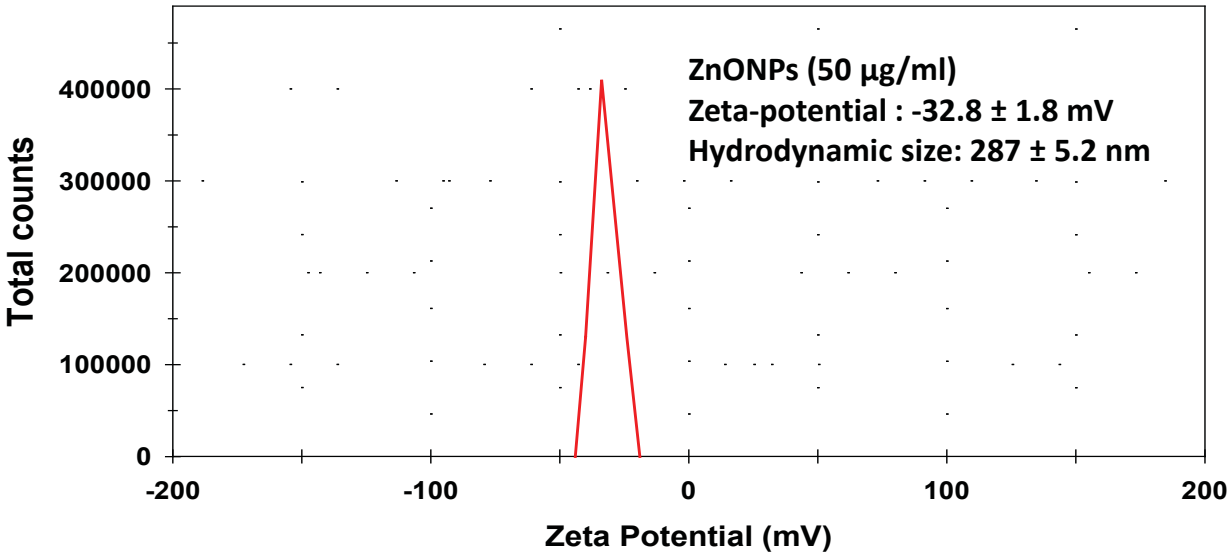
Supplementary figures:



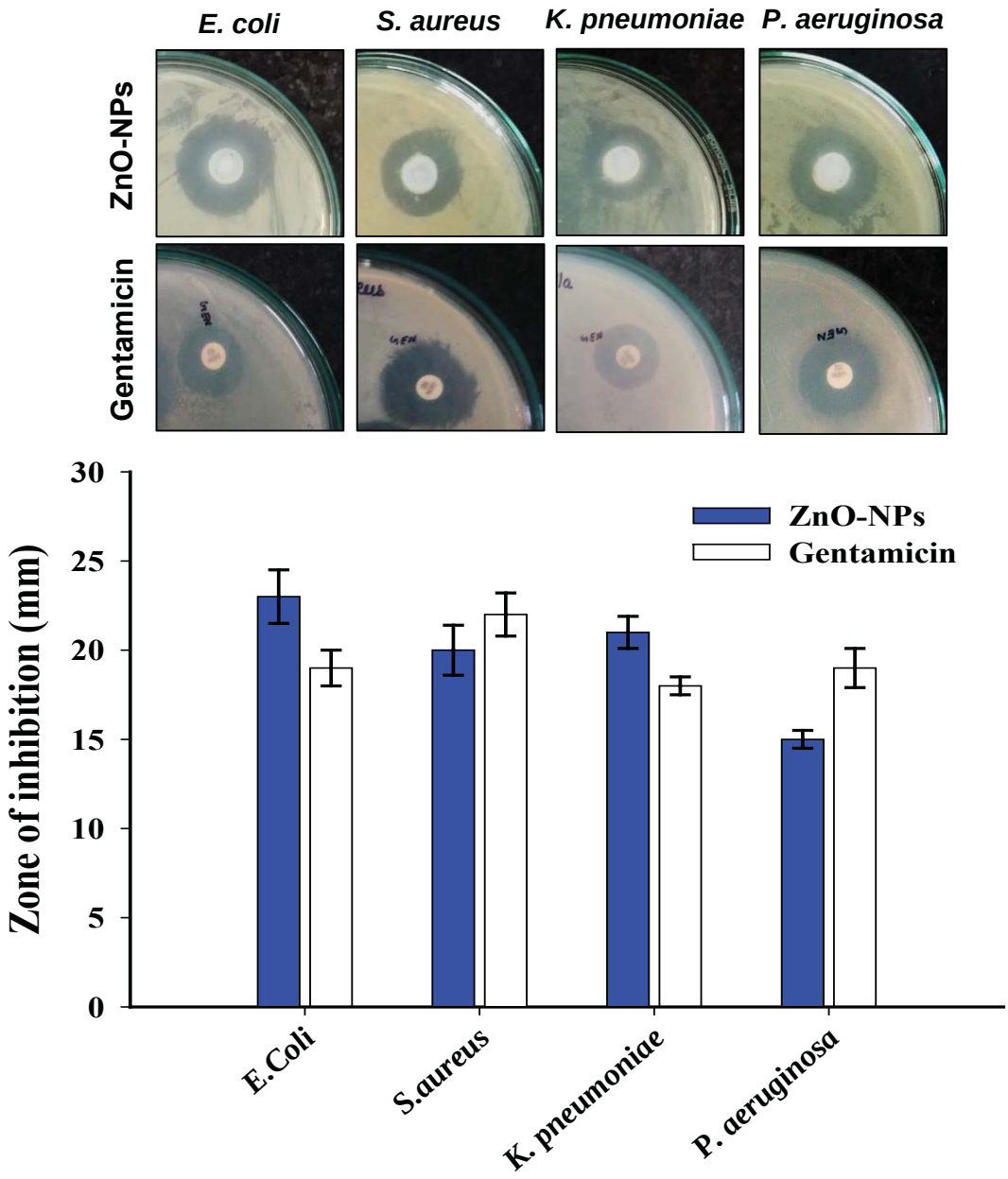
Supplementary Fig. 1 Flow chart for experimental procedure of green production of ZnONPs using *A. indica* leaf extract.



Supplementary Fig. 2 FTIR spectra of *A. indica* leaves (panel A) and green synthesized ZnO-NPs (panel B).



Supplementary Fig. 3 Measurement of secondary size parameters of ZnONPs: ζ-potential analysis and hydrodynamic size of ZnONPs suspended in double distilled water (ddw).



Supplementary Fig. 4 Determination of antibacterial potential of ZnO-NPs against *E. coli*, *S. aureus*, *K. pneuminiae*, and *P. aeruginosa*. Gentamicin disc (5 µg/disc) was used as positive control. Bars represent the values of inhibition zone as mean±S.D.

Supplementary table 1: Functional group assignment of IR signals detected in *A.indica* leaf extract and ZnO-NPs.

Vibration	**IR signal in *A. indica* leaf**	**IR signal in ZnO-NPs**	**Reference**
-OH stretch	3200-3440	3445	Bagad and Khan. (2015)
C-H stretch of aliphatic hydrocarbons	2970	-	Ali et al. (2015)
>C=O groups of aliphatic acids	1715	1760	Ali et al. (2015)
C=C aromatic ring stretch	1640	-	Wang et al. (2014)
N-H bending of amide-II	1530	-	Ramos et al. (2016)
C-H bending of alkanes	1450	1400	Balaji et al. (2017)
Amide-III in proteins	1309	-	Lu and Rasco (2012)
C-N stretching vibration of aliphatic amines	1050	-	Wang et al. (2014)
Vibration of ZnO-NPs	-	495	Current study