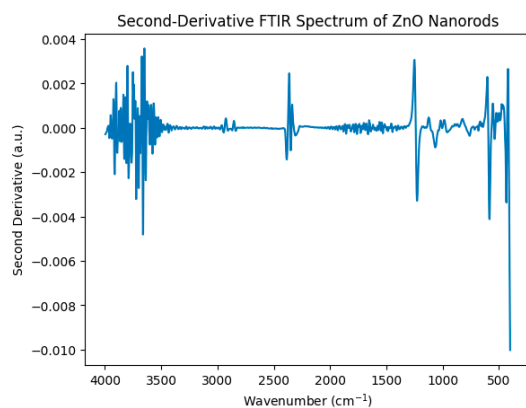
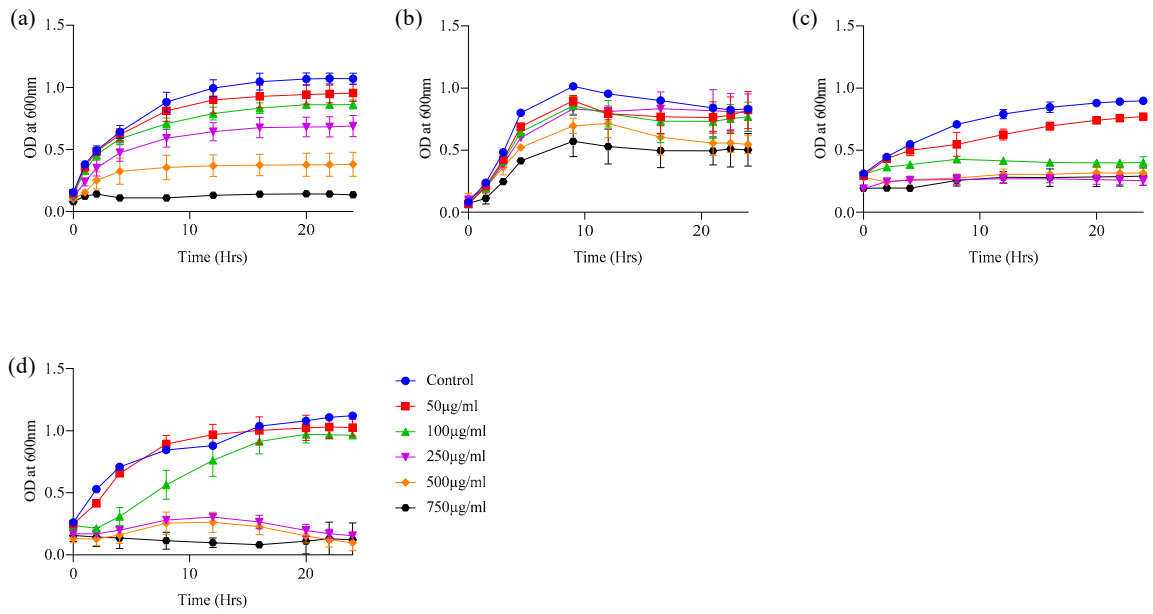


Supplementary information

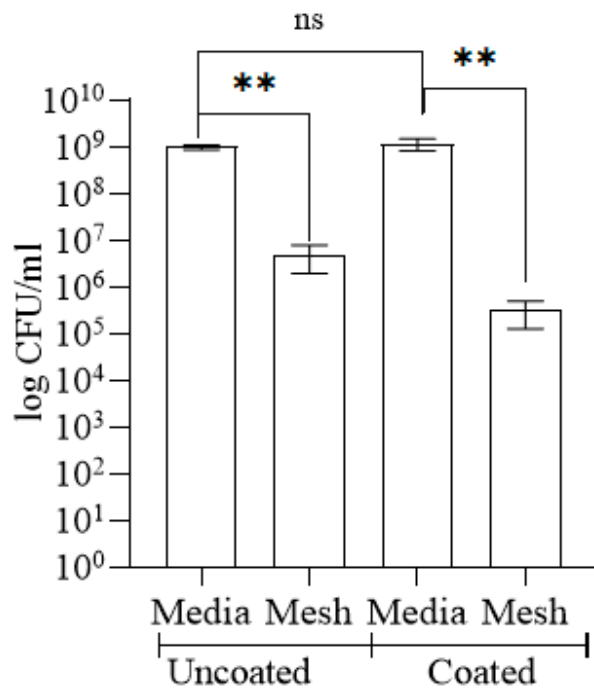
HPMC-ZnO Nanorods Enhance Hydrophilicity and Contact-Killing Activity on Polypropylene Meshes and Sutures



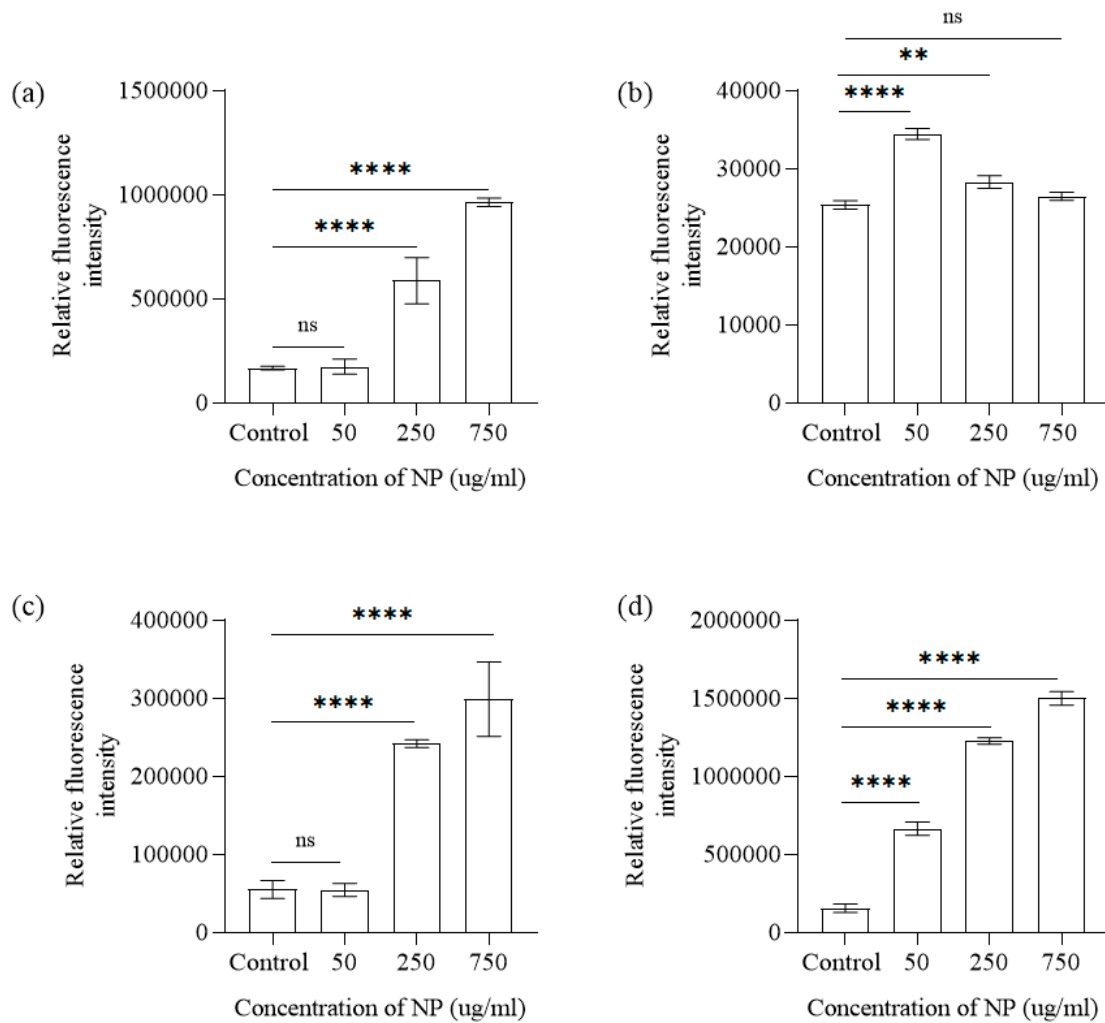
Supplementary Figure S1: The second-derivative spectrum showing multiple overlapping -OH stretching components.



Supplementary Figure S2: Effect of ZnO NP on the growth of (a) *E. coli* ECU6, (b) *P. aeruginosa* PAO1, (c) *K. pneumoniae* KPP1, (d) *S. aureus* SAW1 at concentrations of 50 µg/ml, 100 µg/ml, 250 µg/ml, 500 µg/ml and 750 µg/ml. Untreated bacteria is kept as the Control.



Supplementary Figure S3: Mode of action of ZnO-HPMC nanocomposite coatings. All experiments were done in triplicate. Results are the mean $\pm$ standard deviations of three individual experiments. Statistical analysis was done by unpaired t-test with Welch's correction using GraphPad Prism software (version 8.0.1). Differences were considered significant at $**P < 0.005$.



Supplementary Figure S4: Intracellular Reactive oxygen species (ROS) generation in **(a)** *E. coli* ECU6 **(b)** *P. aeruginosa* PAO1 **(c)** *K. pneumoniae* KPP1 **(d)** *S. aureus* SAW. Data are expressed as mean $\pm$ standard deviation (SD) from multiple independent experiments. Statistical analysis was done by unpaired t-test and ordinary One-way ANOVA using GraphPad Prism software version 8.0.1. Differences were considered significant at $p < 0.05$, $p < 0.001$ **, $p < 0.0001$ ****, *ns* represents non-significant.

Supplementary Table S1: Percentage reduction of viable bacterial cells after exponentially growing bacteria was treated with ZnO NP at different concentrations for a time period of 24 hours.

Strain Id.	50µg/ml	100µg/ml	250µg/ml	500µg/ml	750µg/ml
ECU6	26%	37.8%	75.2%	98.8%	99.8%
PAO1	24%	46%	72%	85%	87.5%
KPP1	43%	84%	99.99%	99.998%	99.9996%
SAW1	33%	59%	95.4%	99.2%	99.1%

Supplementary Table S2. Percentage reduction of biofilm viable cells after treatment with ZnO NP at different concentrations.

Strain Id.	250µg/ml	500µg/ml	750µg/ml
ECU6	34.8%	93.8%	99.67%
PAO1	33%	56.75%	64.25%
KPP1	55.6%	99.4%	99.96%
SAW1	0%	87.87%	98.37%

Supplementary Table S3. ICP-MS analysis for estimating the concentrations of Zn²⁺ ions (µg/L) released from coated mesh immersed in bacterial growth media.

Sample Description	[Zn ²⁺] µg/L	ppm
ZnO NPs coated mesh	390	0.39
ZnO NPs coated sutures	187	0.18