Table S1. Electrochemical parameters of bare Cu, Cu coated with cellulose acetate nanofiber, Cu coated with cellulose acetate nanofiber contain 5% AgNps in artificial seawater and artificial seawater inoculated with bacterium

In Artificial Seawater	polarization data			
	$E_{corr,}$ V vs Ag/AgCl	I_{corr}, μA cm^{-2}	Anodic Tafel slope β_a, V dec^{-1}	Cathodic Tafel slope $-\beta_c$, V dec^{-1}
Cu	-0.123 ± 0.02	42.56 ± 0.45	0.111 ± 0.01	0.253 ± 0.01
Cu_CA-Nf	-0.179 ± 0.01	19.02 ± 0.2	0.100 ± 0.01	0.188 ± 0.02
Cu_5%AgNPs-CA-Nf	-0.114 ± 0.01	14.55 ± 1.4	0.068 ± 0.01	0.165 ± 0.01
Cu_E. coli	-0.32 ± 0.02	109.9 ± 4.8	0.527 ± 0.01	0.588 ± 0.01
Cu_CA-Nf_E. coli	-0.156 ± 0.02	5.42 ± 0.4	0.105 ± 0.01	0.171 ± 0.02
Cu_5%AgNPs-CA-Nf_E. coli	-0.167 ± 0.02	25.97 ± 2.46	0.103 ± 0.01	0.174 ± 0.02

Table S2. Electrochemical model impedance parameters of the bare Cu, Cu coated with cellulose acetate nanofiber, Cu coated with cellulose acetate nanofiber contain 5% AgNps in artificial seawater and artificial seawater inoculated with bacteria

In Artificial Seawater	impedance data						
	R_s, Ω cm^2	R_p, Ω cm^2	R_{ct}, Ω cm^2	Q_{CPE}, Ω^{-1} cm^{-2}	η	Q_{dl} Ω^{-1} cm^{-2}	η
Cu	7.672	152.9	36.07	2.016 x 10^{-3}	0.61	1.208 x 10^{-6}	0.87
Cu_CA-Nf	1.997	46.11	653.5	1.767 x 10^{-6}	0.79	5.46 x 10^{-4}	0.69
Cu_5%AgNPs-CA-Nf	8.507	42.76	359.7	1.421 x 10^{-6}	0.84	4.427 x 10^{-4}	0.65
Cu_E. coli	5.378	46.4	232.8	1.973 x 10^{-6}	0.46	1.913 x 10^{-3}	0.72
Cu_CA-Nf_E. coli	4.64 x 10^{-5}	75.11	1062	1.931 x 10^{-5}	0.59	9.866 x 10^{-4}	0.62
Cu_5%AgNPs-CA-Nf_E. coli	1.072 x 10^{-4}	45.08	276	3.095 x 10^{-6}	0.73	1.248 x 10^{-3}	0.75

R_s resistance of solution
R_p resistance of passive film/biofilm pores
R_{ct} resistance of charge transfer
Q_{CPE} CPE parameters
Q_{dl} electric double layer
η dispersion parameters

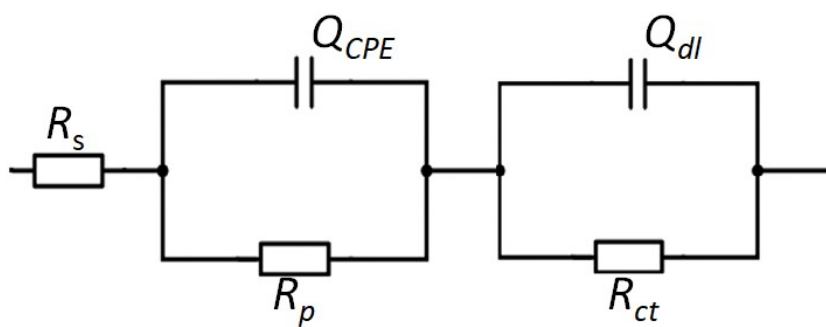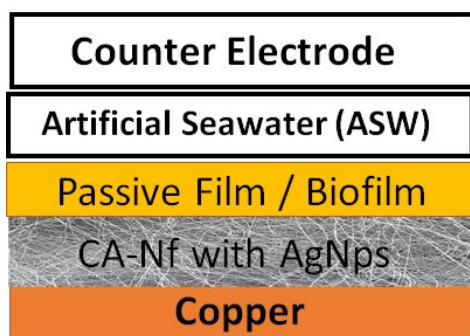Figure S1. Equivalent circuits used for fitting the impedance spectra

Figure S2. Nyquist fitted plots according to the equivalent circuit