

Supplementary Information

Effects of rice root exudates on aggregation, dissolution and bioaccumulation of differently-charged Ag nanoparticles

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Fig.S1.

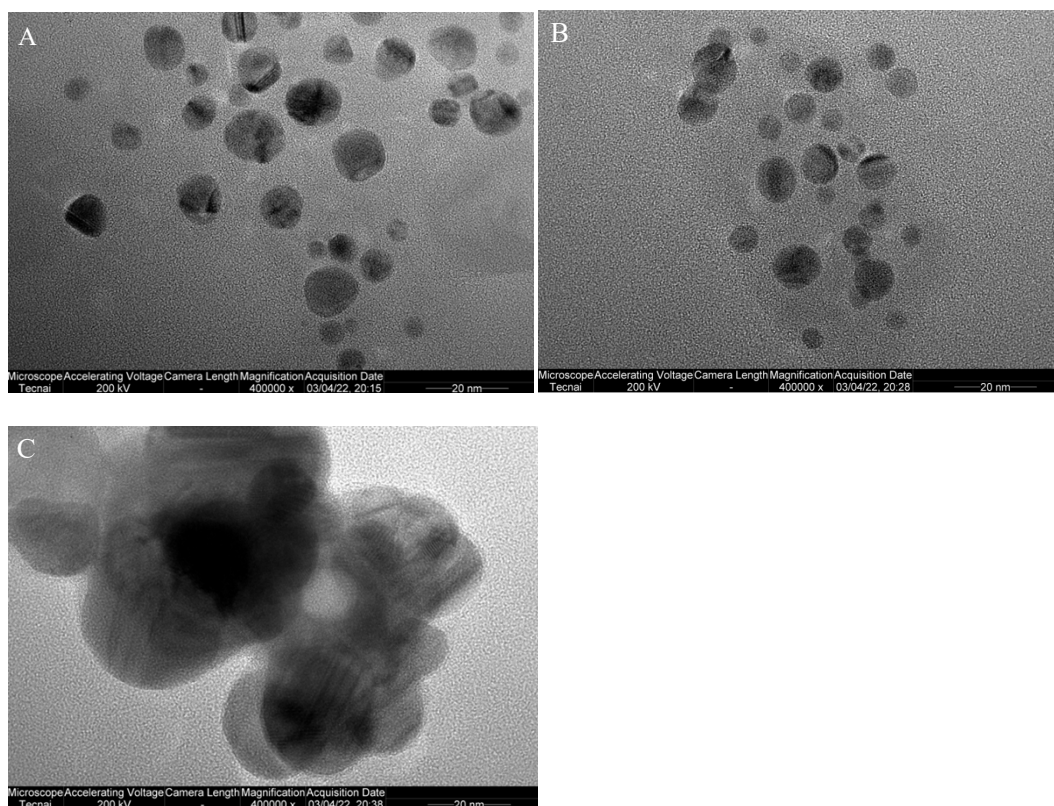


Fig.S1. Transmission electron micrographs of AgNPs@Cit (A), AgNPs@PVP(B), and AgNPs@PEI (C) after 20 min incubation with T-RRE (10mg L^{-1}).

Fig.S2.

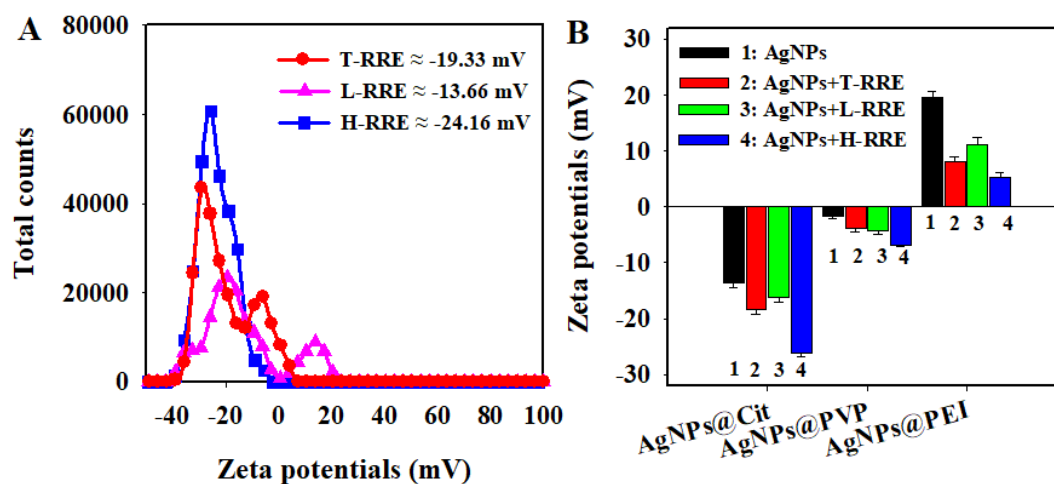


Fig.S2. (A) Zeta potential of T-RRE, L-RRE, and H-RRE. (B) Zeta potential change in AgNPs in the presence of T-RRE, L-RRE, and H-RRE. The concentration of T-RRE, L-RRE, and H-RRE are all 10 mg L⁻¹. The concentration of each AgNP is 100 mg mL⁻¹.

Fig. S3.

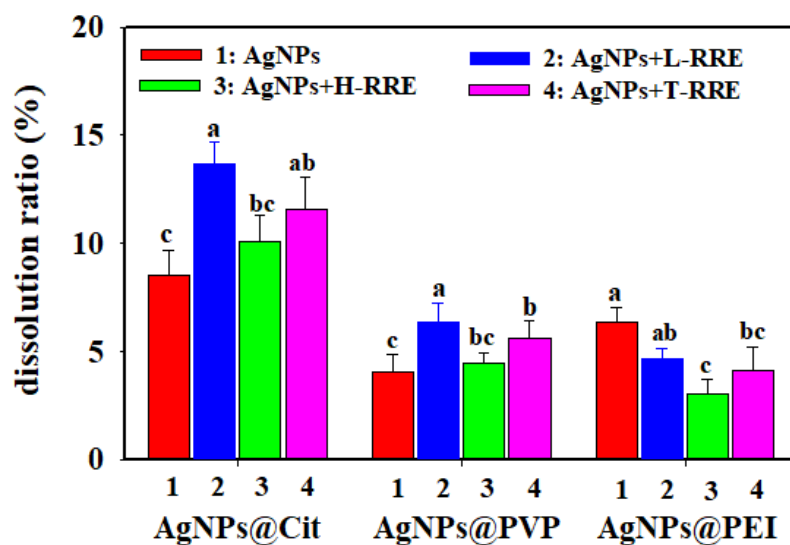


Fig. S3. Dissolution ratio of AgNPs@Cit, AgNPs@PVP, and AgNPs@PEI in the presence of T-RRE, L-RRE, and H-RRE after 168 h of incubation, respectively. Error bars indicate standard deviation of the mean (n =3). Samples with a different letter were significantly different ($P < 0.05$), as determined using Duncan LSD test.

Table.S1

XPS data of AgNPs@Cit, AgNPs@PVP, and AgNPs@PEI in the absence and presence of T-RRE, H-RRE, and L-RRE within 168 h of incubation, respectively.

AgNPs types	Fitted peak	AgNPs (CK)		AgNPs +T-RRE		AgNPs +H-RRE		AgNPs +L-RRE	
		Binding energies	Atomic (%)	Binding energies	Atomic (%)	Binding energies	Atomic (%)	Binding energies	Atomic (%)
AgNPs@Cit	Ag ⁺ 3d _{5/2}	367.63	31.88	367.73	83.53	367.60	79.44	367.53	88.88
	Ag ⁺ 3d _{3/2}	373.63		373.74		373.63		373.57	
	Ag ⁰ 3d _{5/2}	368.12	68.12	368.3	16.47	368.23	20.56	368.33	11.22
	Ag ⁰ 3d _{3/2}	374.13		374.41		374.32		374.36	
AgNPs@PVP	Ag ⁺ 3d _{5/2}	367.69	16.4	367.52	30.79	367.52	33.51	367.51	31.63
	Ag ⁺ 3d _{3/2}	373.73		373.56		373.55		373.66	
	Ag ⁰ 3d _{5/2}	368.29	83.6	368.12	69.21	368.11	66.49	368.24	68.37
	Ag ⁰ 3d _{3/2}	374.29		374.13		374.11		374.25	
AgNPs@PEI	Ag ⁺ 3d _{5/2}	367.56	24.8	357.54	25.28	367.63	19.75	367.65	28.48
	Ag ⁺ 3d _{3/2}	373.6		373.58		373.59		373.69	
	Ag ⁰ 3d _{5/2}	368.16	75.2	368.19	73.72	368.23	80.25	368.25	71.52
	Ag ⁰ 3d _{3/2}	374.15		374.15		371.10		374.19	

