Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supplemental Information

Calculating size- and coating- dependent effect factors for silver nanoparticles to inform characterization factor development for usage in life cycle assessment

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1 Table, 13 Figures, 15 pages

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Search Queries for Toxicity Literature Survey

Crustaceans

TOPIC (“toxicity" OR "LC50" OR "LC 50" OR "EC50" OR "EC 50" OR "acute" OR "chronic") AND ("crustaceans" OR "crustacean") AND ("silver nanoparticle" OR "silver nanoparticles" OR "nanosilver" OR "nano silver" OR "AgNP" OR "AgNPs" OR "nAg")

Algae

TOPIC (“toxicity" OR "LC50" OR "LC 50" OR "EC50" OR "EC 50" OR "acute" OR "chronic") AND ("algae" OR "alga") AND ("silver nanoparticle" OR "silver nanoparticles" OR "nanosilver" OR "nano silver" OR "AgNP" OR "AgNPs" OR "nAg")

Fish

TOPIC (“toxicity" OR "LC50" OR "LC 50" OR "EC50" OR "EC 50" OR "acute" OR "chronic") AND ("fish" OR "fishes") AND ("silver nanoparticle" OR "silver nanoparticles" OR "nanosilver" OR "nano silver" OR "AgNP" OR "AgNPs" OR "nAg")

Protozoa

TOPIC ("toxicity" OR "LC50" OR "LC 50" OR "EC50" OR "EC 50") AND ("ciliate" OR "ciliates" OR "protozoa" OR "protozoan" OR "protozoans") AND ("silver nanoparticle" OR "silver nanoparticles" OR "nanosilver" OR "nano silver" OR "AgNP" OR "AgNPs" OR "nAg")

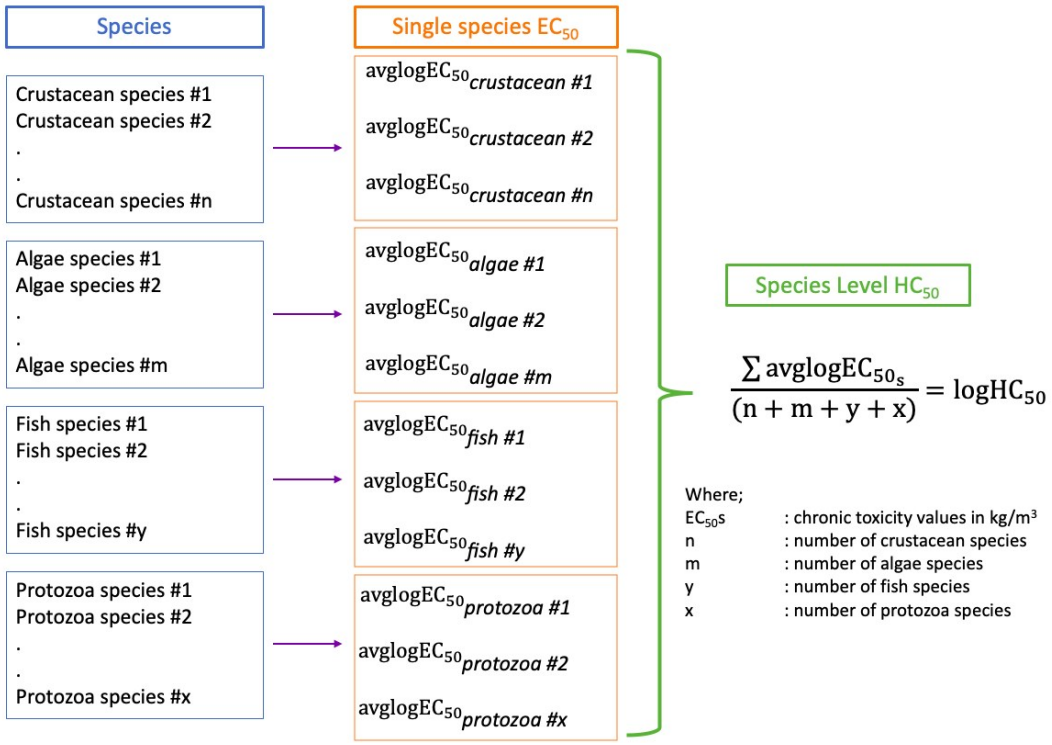

Figure S1. Species level (SPL) HC_{50} calculation scheme

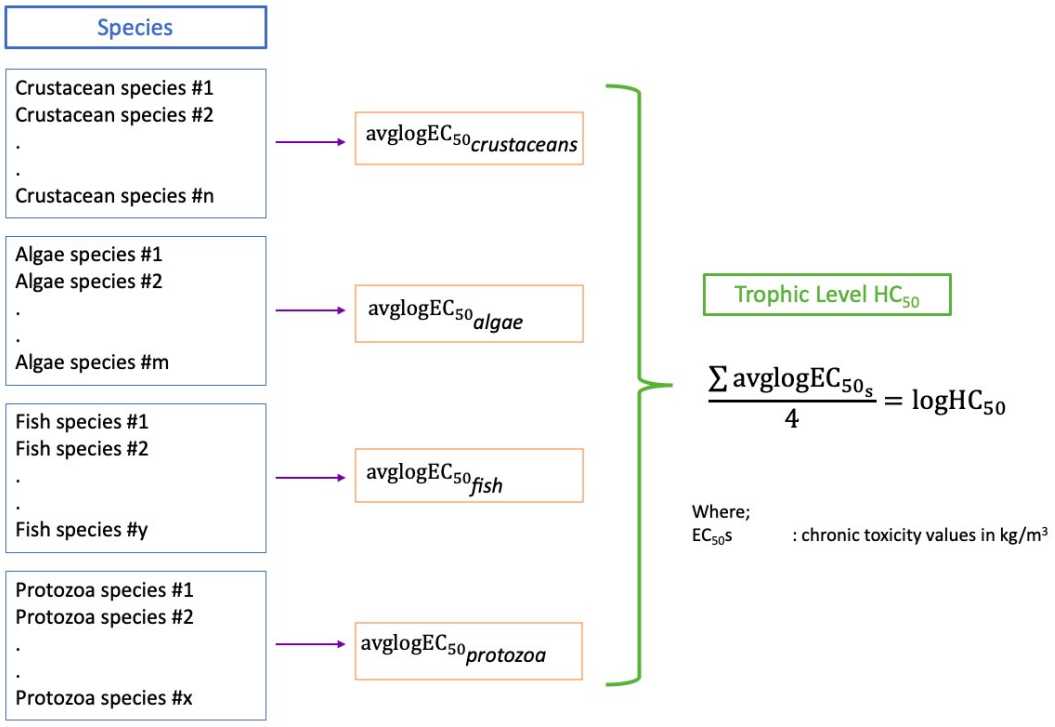

Figure S2. Trophic level (TPL) HC_{50} calculation scheme

Table S1. Number of papers disaggregated based on coating, test medium and size for each aquatic organism

Size (nm)	Organism	Water Medium					Mineral Medium					Complex Medium					Regardless of Medium				
		cit	PVP	un	o	sum	cit	PVP	un	o	sum	cit	PVP	un	o	sum	cit	PVP	un	o	sum
1-10	C	0	0	1	0	1	9	2	6	10	27	2	7	0	0	9	11	9	7	10	37
	A	0	1	0	0	1	5	1	3	6	15	0	1	0	0	1	5	3	3	6	17
	F	0	1	4	0	5	6	0	2	3	11	2	0	0	0	2	8	1	6	3	18
	P	0	0	2	0	2	0	0	0	0	0	0	0	0	1	1	0	0	2	1	3
10.1-20	C	2	2	0	6	10	5	7	8	7	27	1	0	0	6	7	8	9	8	19	44
	A	0	0	0	6	6	9	0	15	2	26	3	0	0	0	3	12	0	15	8	35
	F	0	0	14	1	15	1	5	11	3	20	6	0	6	0	12	7	5	31	4	47
	P	0	0	0	2	2	0	0	0	0	0	0	0	2	0	2	0	0	2	2	4
20.1-30	C	1	0	0	5	6	4	4	4	4	16	1	1	5	0	7	6	5	9	9	29
	A	0	0	0	0	0	6	3	3	10	22	0	0	2	0	2	6	3	5	10	24
	F	0	4	0	0	4	1	3	4	4	12	0	1	0	0	1	1	8	4	4	17
	P	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2
30.1-40	C	2	1	0	1	4	3	0	7	3	13	1	0	0	0	1	6	1	7	4	18
	A	0	0	0	0	0	1	0	4	2	7	0	0	0	0	0	1	0	4	2	7
	F	0	0	0	0	0	0	0	4	1	5	0	0	0	0	0	0	0	4	1	5
	P	0	2	2	1	5	0	0	0	0	0	0	0	0	0	0	0	2	2	1	5
40.1-50	C	0	0	0	0	0	0	2	3	0	5	0	0	0	0	0	0	2	3	0	5
	A	0	0	0	0	0	0	1	3	2	6	0	0	0	0	0	0	1	3	2	6
	F	0	0	2	0	2	2	1	6	2	11	0	1	3	0	4	2	2	11	2	17
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.1-60	C	1	0	0	0	1	5	1	1	0	7	0	0	0	0	0	6	1	1	0	8
	A	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	1	5	0	0	6
	F	0	0	0	0	0	0	7	2	2	11	0	0	0	0	0	0	7	2	2	11
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

60.1-70	C	1	0	0	0	1	1	2	0	3	6	0	0	0	0	0	2	2	0	3	7
	A	0	0	0	0	0	1	0	2	4	7	0	0	0	0	0	1	0	2	4	7
	F	0	0	4	0	4	0	0	0	1	1	0	0	0	0	0	0	0	4	1	5
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70.1-80	C	1	0	0	0	1	3	1	4	0	8	0	0	0	1	1	4	1	4	1	10
	A	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2
	F	1	0	1	0	2	0	1	4	0	5	0	0	0	1	1	1	1	5	1	8
	P	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
80.1-90	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	A	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	1	0	2
	F	0	0	0	0	0	0	2	5	0	7	0	0	0	0	0	0	2	5	0	7
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.1-100	C	0	0	1	0	1	1	0	1	1	3	1	0	0	0	1	2	0	2	1	5
	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	F	1	6	8	0	15	0	1	0	1	2	0	0	0	0	0	1	7	8	1	17
	P	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
>100	C	1	1	0	2	4	1	0	6	1	8	0	0	1	0	1	2	1	7	3	13
	A	0	0	0	0	0	0	0	2	1	3	0	1	0	0	1	0	1	2	1	4
	F	0	0	4	0	4	2	3	2	4	11	0	1	0	0	1	2	4	6	4	16
	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

C: crustaceans, A: algae, F: fish, P: protozoa, cit: citrate coated, PVP: polyvinylpyrrolidone, un: uncoated, o: other coatings, sum: regardless of coating

A) Crustaceans

nAg size	Water				Mineral				Complex				All Media (i.e. regardless)				All coatings (i.e. regardless)			
	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Water	Mineral	Complex	All Media
1-10	0	0	1	0	9	2	6	10	2	7	0	0	11	9	7	10	1	27	9	37
10.1-20	2	2	0	6	5	7	8	7	1	0	0	6	8	9	8	19	10	27	7	44
20.1-30	1	0	0	5	4	4	4	4	1	1	5	0	6	5	9	9	6	16	7	29
30.1-40	2	1	0	1	3	0	7	3	1	0	0	0	6	1	7	4	4	13	1	18
40.1-50	0	0	0	0	5	1	1	0	0	0	0	0	0	2	3	0	0	7	0	5
50.1-60	1	0	0	0	5	1	1	0	0	0	0	0	6	1	1	0	1	7	0	8
60.1-70	1	0	0	0	1	2	0	3	0	0	0	0	2	2	0	3	1	6	0	7
70.1-80	1	0	0	0	1	1	0	0	0	0	0	1	4	1	4	1	1	2	1	10
80.1-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.1-100	0	0	1	0	1	0	1	1	1	0	0	0	2	0	2	1	1	3	1	5
>100	1	1	0	2	1	0	6	1	0	0	1	0	2	1	7	3	4	8	1	13

B) Algae

nAg size	Water				Mineral				Complex				All Media (i.e. regardless)				All coatings (i.e. regardless)			
	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Water	Mineral	Complex	All Media
1-10	0	1	0	0	5	1	3	6	0	1	0	0	5	3	3	6	1	15	1	17
10.1-20	0	0	0	6	9	0	15	2	3	0	0	0	12	0	15	8	6	26	3	35
20.1-30	0	0	0	0	6	3	3	10	0	0	2	0	6	3	5	10	0	22	2	24
30.1-40	0	0	0	0	1	0	4	2	0	0	0	0	1	0	4	2	0	7	0	7
40.1-50	0	0	0	0	0	1	3	2	0	0	0	0	0	1	3	2	0	6	0	6
50.1-60	0	0	0	0	1	5	0	0	0	0	0	0	1	5	0	0	0	6	0	6
60.1-70	0	0	0	0	1	0	2	4	0	0	0	0	1	0	2	4	0	7	0	7
70.1-80	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	2	0	2
80.1-90	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	2	0	2
90.1-100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>100	0	0	0	0	0	0	2	1	0	1	0	0	0	1	2	1	0	3	1	4

C) Fish

nAg size	Water				Mineral				Complex				All Media (i.e. regardless)				All coatings (i.e. regardless)			
	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Water	Mineral	Complex	All Media
1-10	0	1	4	0	6	0	2	3	2	0	0	0	8	1	6	3	5	11	2	18
10.1-20	0	0	14	1	1	5	11	3	6	0	6	0	7	5	31	4	15	20	12	47
20.1-30	0	4	0	0	1	3	4	4	0	1	0	0	1	8	4	4	4	12	1	17
30.1-40	0	0	0	0	0	0	4	1	0	0	0	0	0	0	4	1	0	5	0	5
40.1-50	0	0	2	0	2	1	6	2	0	1	3	0	2	2	11	2	2	11	4	17
50.1-60	0	0	0	0	0	7	2	2	0	0	0	0	0	7	2	2	0	11	0	11
60.1-70	0	0	4	0	0	0	0	1	0	0	0	0	0	0	4	1	4	1	0	5
70.1-80	1	0	1	0	0	1	4	0	0	0	0	1	1	1	5	1	2	5	1	8
80.1-90	0	0	0	0	0	2	5	0	0	0	0	0	0	2	5	0	0	7	0	7
90.1-100	1	6	8	0	0	1	0	1	0	0	0	0	1	7	8	1	15	2	0	17
>100	0	0	4	0	2	3	2	4	0	1	0	0	2	4	6	4	4	11	1	16

D) Protozoa

nAg size	Water				Mineral				Complex				All Media (i.e. regardless)				All coatings (i.e. regardless)			
	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Citrate	PVP	Uncoated	Other	Water	Mineral	Complex	All Media
1-10	0	0	2	0	0	0	0	0	0	0	0	1	0	0	2	1	2	0	1	3
10.1-20	0	0	0	2	0	0	0	0	0	0	2	0	0	0	2	2	2	0	2	4
20.1-30	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	2	0	2
30.1-40	0	2	2	1	0	0	0	0	0	0	0	0	0	2	2	1	5	0	0	5
40.1-50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50.1-60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60.1-70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70.1-80	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1
80.1-90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90.1-100	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	2
>100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure S3. Number of toxicity data disaggregated by the test medium, nAg size and coating for A) crustaceans, B) algae, C) fish and D) protozoa

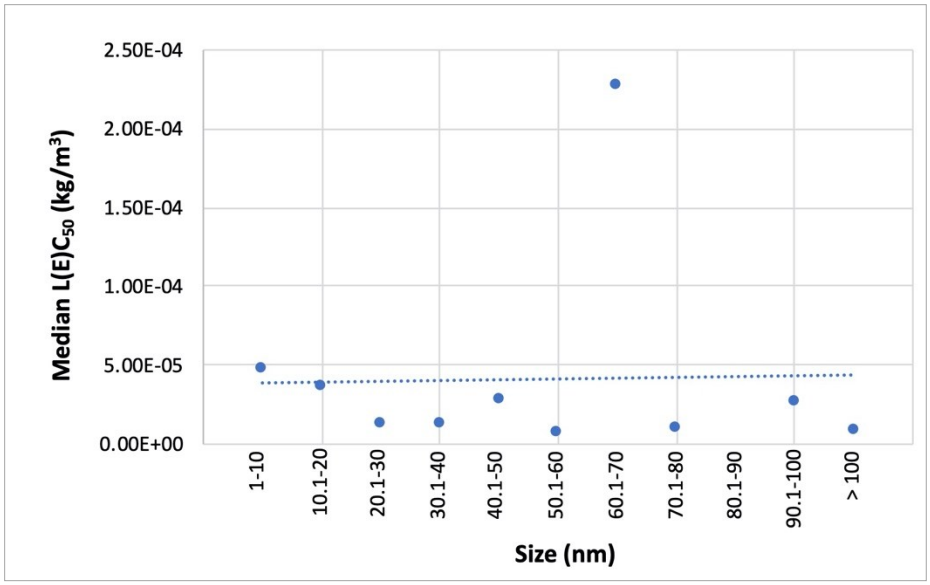

Figure S4. Size versus Median $L(E)C_{50}$ values for crustaceans

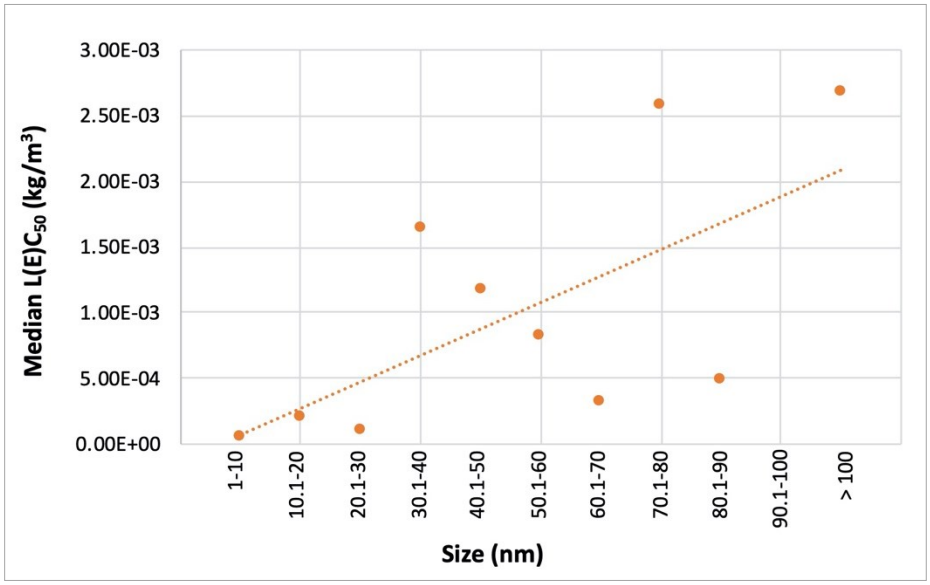

Figure S5. Size versus Median $L(E)C_{50}$ values for algae

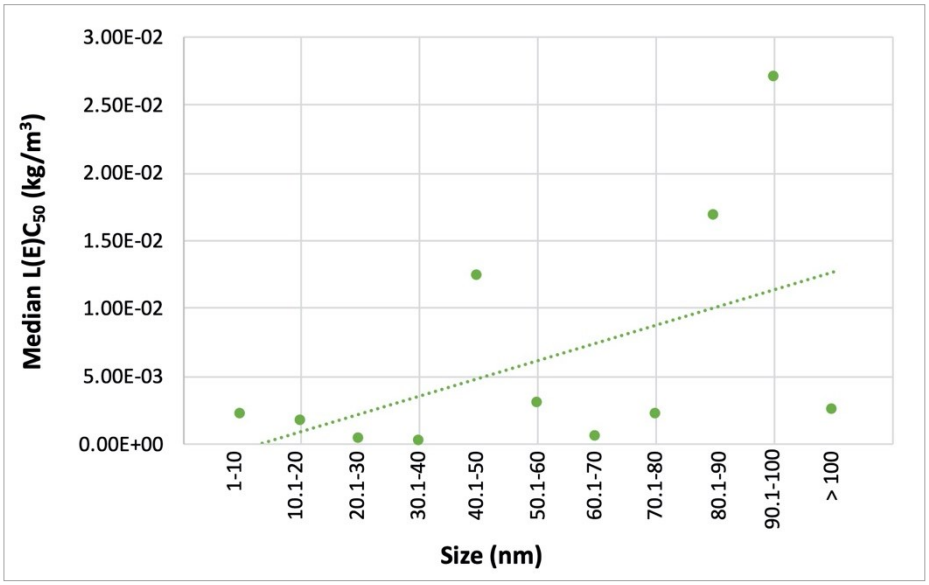

Figure S6. Size versus Median $L(E)C_{50}$ values for fish

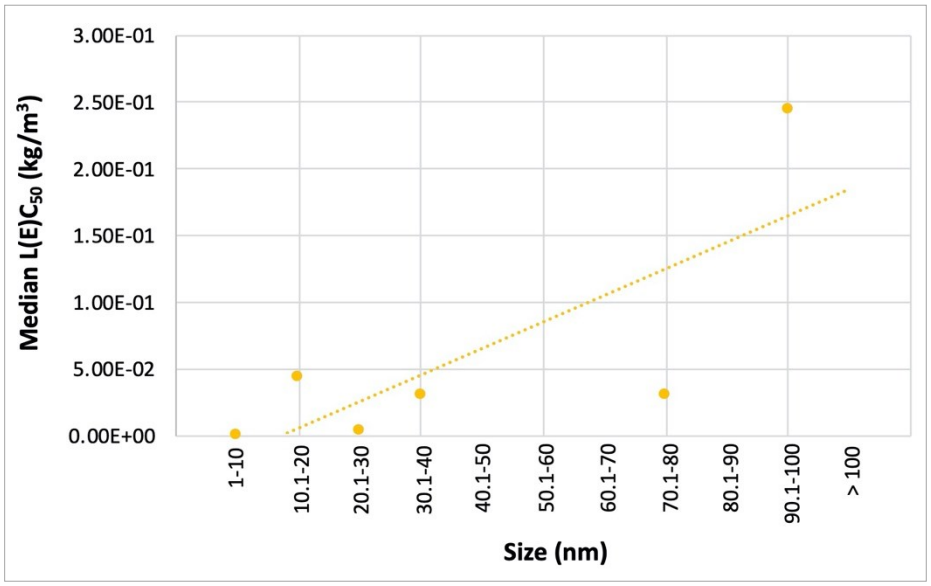

Figure S7. Size versus Median $L(E)C_{50}$ values for protozoa

COATING: PVP

	1-10 nm		10.1-20 nm		20.1-30 nm		30.1-40 nm		40.1-50 nm		50.1-60 nm		60.1-70 nm		70.1-80 nm		80.1-90 nm		90.1-100 nm		> 100 nm		All sizes	
	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS
A) Water	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B) Mineral Medium	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6,321	11,112
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,897	10,469
C) Complex Medium	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D) All test mediums	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19,303	11,378
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6,581	10,649

N/A: not enough data for calculation were available, therefore the corresponding EF could not be calculated.

Figure S8. Effect factors (PAF.m^3/kg) for PVP coated nAg based on size and test media

COATING: Citrate

	1-10 nm		10.1-20 nm		20.1-30 nm		30.1-40 nm		40.1-50 nm		50.1-60 nm		60.1-70 nm		70.1-80 nm		80.1-90 nm		90.1-100 nm		> 100 nm		All sizes	
	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS
A) Water	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B) Mineral Medium	SPL	N/A	37,360	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33,092
	TPL	N/A	35,441	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22,871
C) Complex Medium	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D) All test mediums	SPL	N/A	21,977	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32,686
	TPL	N/A	28,698	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	25,447

N/A: not enough data for calculation were available, therefore the corresponding EF could not be calculated.

Figure S9. Effect factors (PAF.m^3/kg) for citrate coated nAg based on size and test media

COATING: Uncoated

	1-10 nm		10.1-20 nm		20.1-30 nm		30.1-40 nm		40.1-50 nm		50.1-60 nm		60.1-70 nm		70.1-80 nm		80.1-90 nm		90.1-100 nm		> 100 nm		All sizes	
	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS
A) Water	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B) Mineral Medium	SPL	N/A	N/A	50,754	18,089	N/A	160,934	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	68,441	22,950
	TPL	N/A	N/A	48,846	78,107	N/A	81,575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38,372	47,452
C) Complex Medium	SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D) All test mediums	SPL	N/A	7,887	50,754	13,476	N/A	87,991	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	17,290	13,844
	TPL	N/A	10,721	48,846	42,457	N/A	85,346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9,236	20,524

N/A: not enough data for calculation were available, therefore the corresponding EF could not be calculated.

Figure S10. Effect factors (PAF.m^3/kg) for uncoated nAg based on size and test media

COATING: Other

	1-10 nm		10.1-20 nm		20.1-30 nm		30.1-40 nm		40.1-50 nm		50.1-60 nm		60.1-70 nm		70.1-80 nm		80.1-90 nm		90.1-100 nm		> 100 nm		All sizes	
	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS
A) Water																								
SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B) Mineral Medium																								
SPL	N/A	66,050	N/A	N/A	N/A	47,108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38,645	22,961
TPL	N/A	206,055	N/A	N/A	N/A	37,139	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	81,999	40,793
C) Complex Medium																								
SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D) All test mediums																								
SPL	N/A	61,170	N/A	N/A	N/A	30,818	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	29,906	18,390
TPL	N/A	181,313	N/A	N/A	N/A	12,079	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	58,129	18,581

N/A: not enough data for calculation were available, therefore the corresponding EF could not be calculated.

Figure S11. Effect factors (PAF.m^3/kg) for nAg coated with other capping agents based on size and test media

COATING: All coatings (i.e. regardless of coating)

	1-10 nm		10.1-20 nm		20.1-30 nm		30.1-40 nm		40.1-50 nm		50.1-60 nm		60.1-70 nm		70.1-80 nm		80.1-90 nm		90.1-100 nm		> 100 nm		All sizes	
	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS	RCS	CCS
A) Water SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B) Mineral Medium SPL	30,035	20,964	123,660	27,372	N/A	38,002	N/A	18,393	N/A	N/A	899	2,015	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27,523	22,981
TPL	73,795	70,984	49,456	53,118	N/A	54,419	N/A	20,432	N/A	N/A	2,374	5,149	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22,948	30,745
C) Complex Medium SPL	N/A	N/A	N/A	12,515	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,959	12,189
TPL	N/A	N/A	N/A	8,989	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10,233	10,928
D) All test mediums SPL	N/A	10,362	99,608	18,169	N/A	46,313	N/A	N/A	N/A	N/A	899	2,088	N/A	42,943	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6,333	14,675	9,679
TPL	N/A	42,431	39,755	29,523	N/A	47,163	N/A	N/A	N/A	N/A	2,374	5,527	N/A	42,943	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8,477	8,035	12,130

N/A: not enough data for calculation were available, therefore the corresponding EF could not be calculated.

Figure S12. Effect factors (PAF.m^3/kg) for nAg based on size and test media regardless of coating

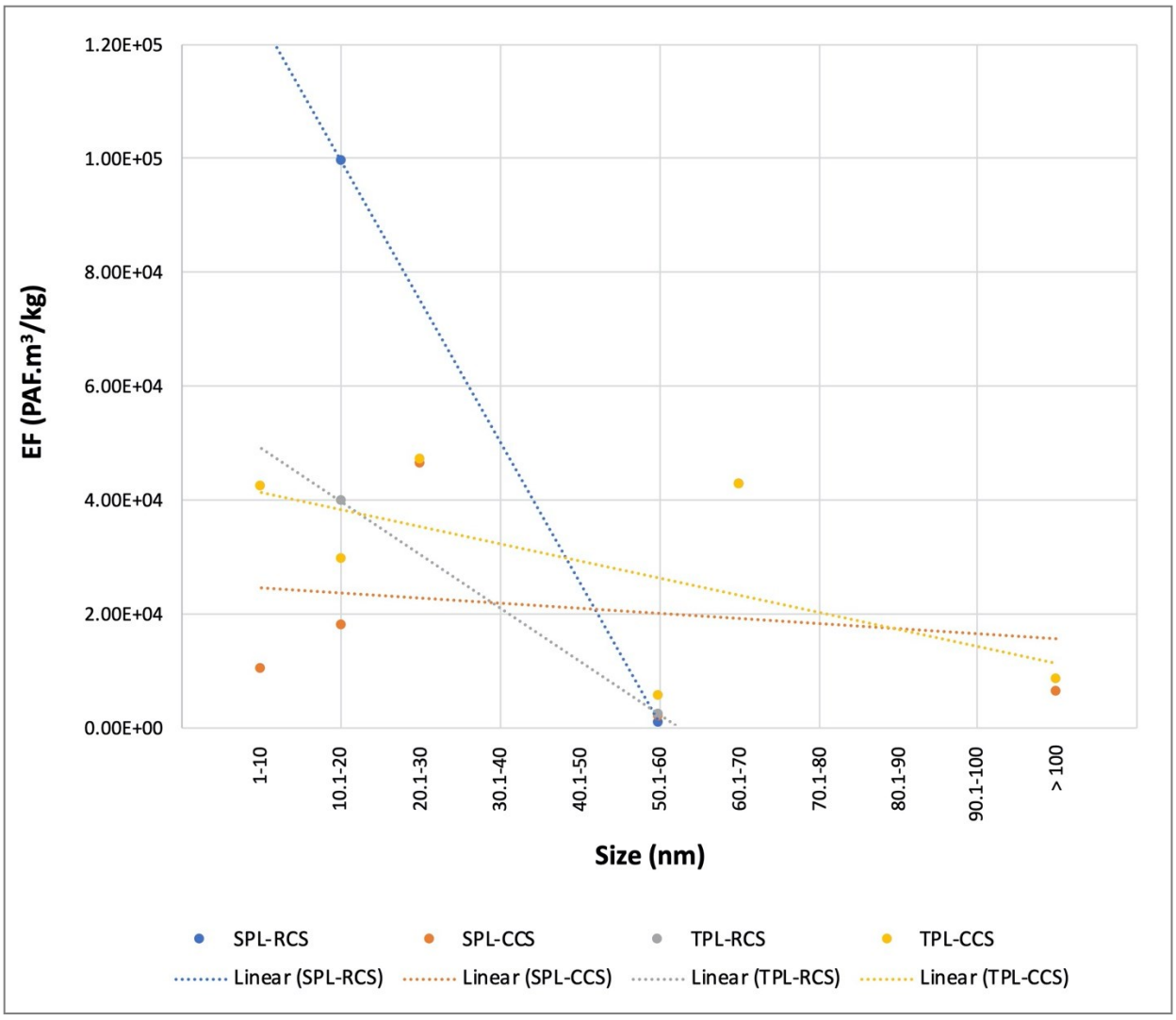

Figure S13. Size dependent effect factors for different scenarios and respective trendlines