# Supporting Information

Potent *in vivo* antimalarial activity of water-soluble Artemisinin nano-preparations

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A

IC$_{50}$ = 14.97 $\pm$ 1.20 nM

B

IC$_{50}$ = 62.74 $\pm$ 1.46 nM
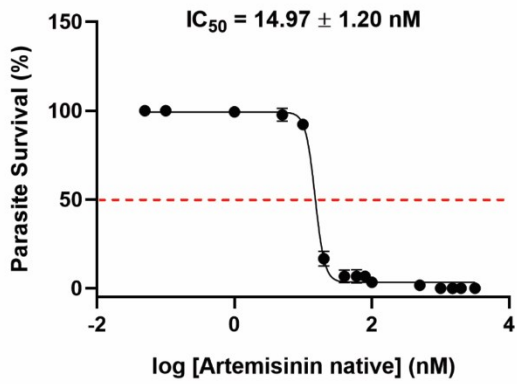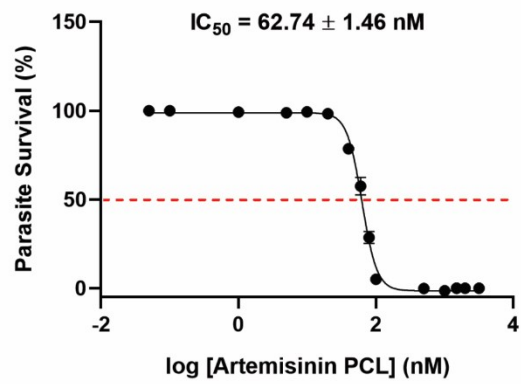
C
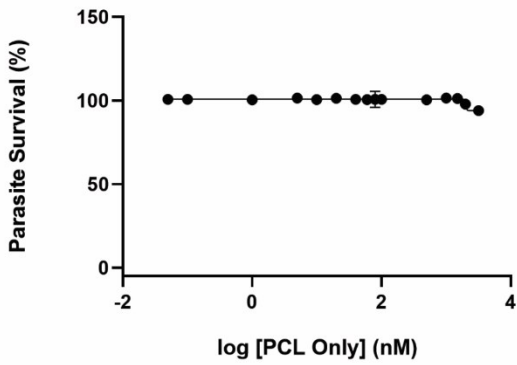
Supplementary Figure 1: Standardization of the in vitro antiplasmodial activity of the PCL Artemisinin nanoformulations. Dose response curves were generated by incubating synchronized ring stage parasites with increasing concentrations of the indicated formulation for a period of 48h and the parasitemia was estimated by SYBR green I assay.

A

Parasite Survival (%) vs log [Artemisinin native] (nM)

$IC_{50} = 11.13 \pm 1.18$ nM

B

Parasite Survival (%) vs log [Artemisinin-Liposome] (nM)

$IC_{50} = 13.15 \pm 1.22$ nM

C

Parasite Survival (%) vs log [Liposome Only]
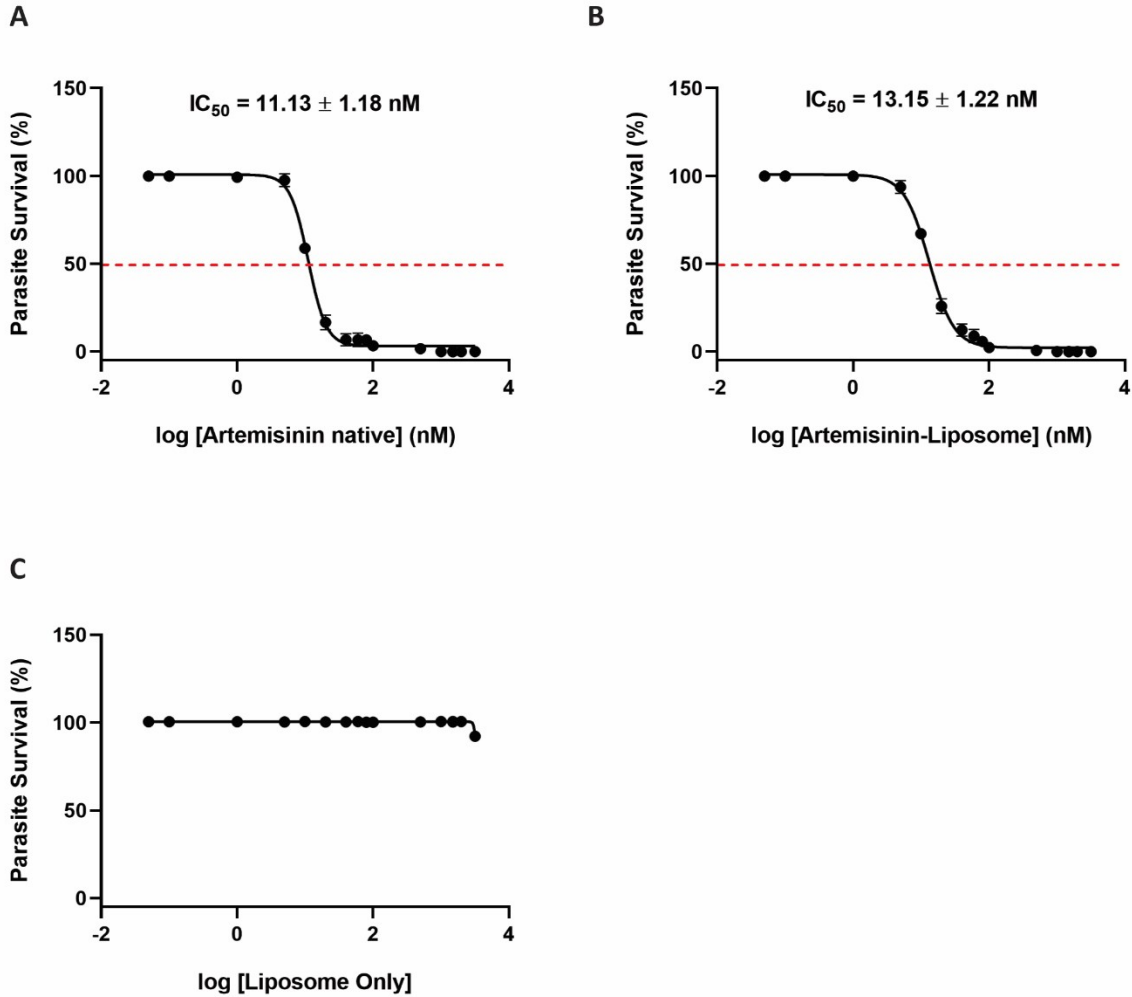
Supplementary Figure 2: Standardization of the *in vitro* antiplasmodial activity of the Liposome based Artemisinin nanoformulations. Dose response curves were generated by incubating synchronized ring stage parasites with increasing concentrations of the indicated formulation for a period of 48h and the parasitemia was estimated by SYBR green I assay.
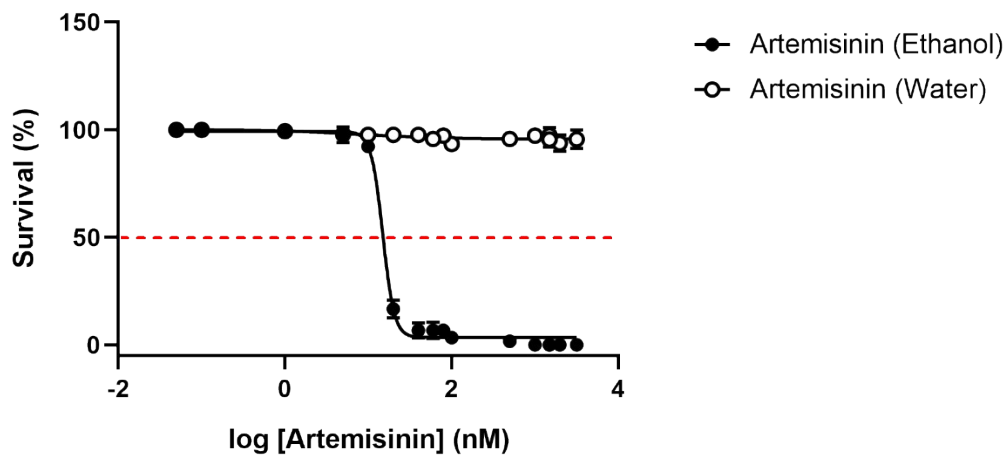
Supplementary Figure 3: Artemisinin does not retain its antimalarial activity in water. Artemisinin is readily soluble in Ethanol and sparingly soluble in water. We made a dispersion of the drug in water and tested a rage of concentrations to check if the compound retains any antiplasmodial effect at higher doses. Artemisinin is soluble in solvents of medium polarity like, Chloroform, Toluene, Ethyl Acetate and Acetone. The compound is sparingly soluble in strong polar solvents like water, methanol and acetonitrile.

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Supplementary Table 1: The observed effects of independent variable on the dependent variables

expressed as mean$\pm$ SD(n=3)

Std	Run	Coded Level variables			Actual Value variables			Responses Values			
		X_1	X_2	X_3	X_1	X_2	X_3	Hydrodynamic radii (r. nm)	Zeta Potential(mV)	% Entrapment Effeciency	
10	1	0	1	-1	2	0.3	1	126.5 $\pm$ 4.04	-20.03 $\pm$ 0.03	65.94 $\pm$ 6.3	
8	2	1	0	1	3	0.2	3	113.19 $\pm$ 3.8	-15.20 $\pm$ 0.58	46.56 $\pm$ 2.96	
5	3	-1	0	-1	1	0.2	1	107 $\pm$ 2.5	-14.30 $\pm$ 0.31	70.641 $\pm$ 5.79	
12	4	0	1	1	2	0.3	3	124.63 $\pm$ 6.81	-23.70 $\pm$ 0.63	63.91 $\pm$ 5.62	
3	5	-1	1	0	1	0.3	2	124.45 $\pm$ 3.72	-17.50 $\pm$ 0.77	72.88 $\pm$ 3.1	
13	6	0	0	0	2	0.2	2	121.48 $\pm$ 3.66	-18.3 $\pm$ 0.9	63.86 $\pm$ 0.8	
11	7	0	-1	1	2	0.1	3	97.35 $\pm$ 2.6	-14.80 $\pm$ 0.86	58.8 $\pm$ 2.6	
1	8	-1	-1	0	1	0.1	2	96.38 $\pm$ 3.14	-17.40 $\pm$ 1.0	64.94 $\pm$ 2.7	
7	9	-1	0	1	1	0.2	3	114.50 $\pm$ 3.9	-16.90 $\pm$ 0.12	69.58 $\pm$ 2.33	
9	10	0	-1	-1	2	0.1	1	97.45 $\pm$ 0.49	-19.50 $\pm$ 0.92	39.76 $\pm$ 1.46	
2	11	1	-1	0	3	0.1	2	94.86 $\pm$ 1.27	-14.70 $\pm$ 0.66	36.39 $\pm$ 3.88	
14	12	0	0	0	2	0.2	2	121.78 $\pm$ 2.44	-16.60 + 0.49	61.89 $\pm$ 2.3	
6	13	1	0	-1	3	0.2	1	107 $\pm$ 1.7	-22.80 $\pm$ 0.60	58.49 $\pm$ 0.92	
4	14	1	1	0	3	0.3	2	123.15 $\pm$ 3.4	-19.50 $\pm$ 1.21	67.30 $\pm$ 2.6	
15	15	0	0	0	2	0.2	2	122.56 $\pm$ 4.86	-15.5 $\pm$ 0.78	62.5 $\pm$ 4.52	

References

1. Y. Liu, H. lü and F. Pang, *Journal of Chemical & Engineering Data*, 2009, **54**, 762-764.