

Reformulating lumefantrine as Flash NanoPrecipitated particles and the impact of incorporation into milk-based formulations on drug solubilisation during digestion

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Table S1. Nutritional information of the infant formula used in this study.

Nutritional Information	Quantity per 100 g powder
Total fat	27.1 g
Saturated fat	15 g
Protein	10.8 g
Carbohydrate	56 g
Sodium	254 mg
Calcium	425 mg
Vitamin A	425 µg
Riboflavin (Vitamin B2)	773 µg

Table S2. Fatty acids (FA) composition of the infant formula after 60 mins digestion by pancreatic lipase as determined using LC-MS.

FA	<i>sn-1,3</i>	<i>sn-2</i>
C4:0	0.00 ± 0.00	0.08 ± 0.02
C6:0	0.03 ± 0.00	0.00 ± 0.00
C8:0	6.72 ± 0.45	0.86 ± 0.17
C10:0	4.29 ± 0.08	2.09 ± 0.25
C12:0	2.50 ± 0.03	5.96 ± 0.46
C14:0	6.10 ± 0.10	1.08 ± 0.09
C16:0	29.86 ± 1.39	0.00 ± 0.00
C18:0	4.82 ± 0.85	0.00 ± 0.00
C18:1 n-9	36.02 ± 1.57	30.33 ± 1.58
C18:2 n-6	7.83 ± 0.16	35.70 ± 1.68
C18:3 n-3	0.28 ± 0.01	23.49 ± 1.62

Table S3. Bragg peak positions (as scattering vector q in \AA^{-1}) for lumefantrine, artemether and Riamet[®] (lumefantrine+artemether).

Lumefantrine	Artemether	Riamet [®]
0.40	0.69	0.13
0.77	0.72	0.40
0.78	0.74	0.69
0.79	0.78	0.72
0.84	0.81	0.73
0.97	0.98	0.77
1.02	1.01	0.79
1.07	1.21	0.97
1.11	1.24	1.02
1.19	1.26	1.07
1.22	1.28	1.11
1.29	1.32	1.19
1.32	1.37	1.22
1.36	1.40	1.24
1.38	1.41	1.26
1.41	1.44	1.29
1.43	1.48	1.32
1.49	1.56	1.36
1.53	1.59	1.38
1.56	1.62	1.43
1.58	1.74	1.49
1.64		1.53
1.68		1.56
1.69		1.64
1.70		1.69
1.72		1.72

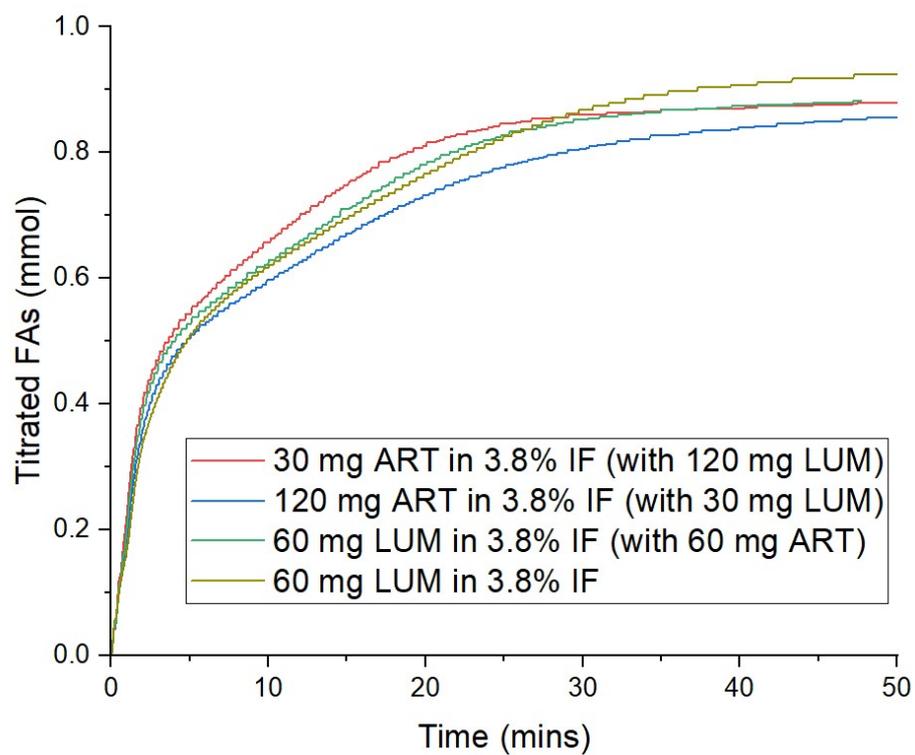


Figure S1. Titrated (ionised) fatty acids during digestion of 3.8 w/v% infant formula (IF) containing lumefantrine (LUM) and artemether (ART).

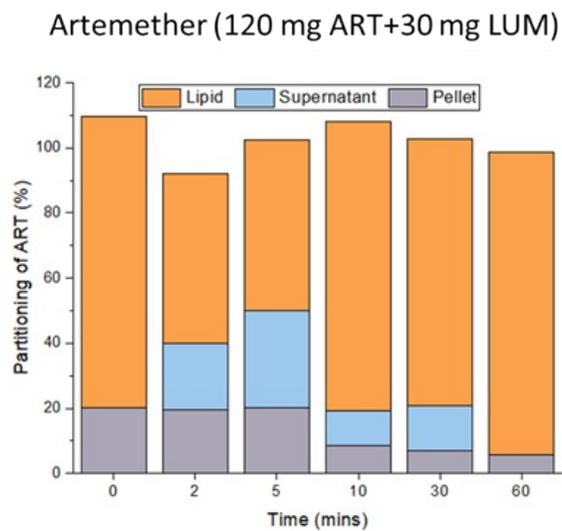
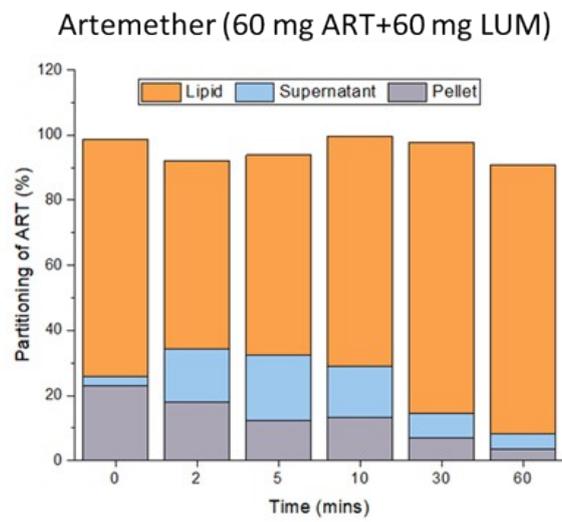
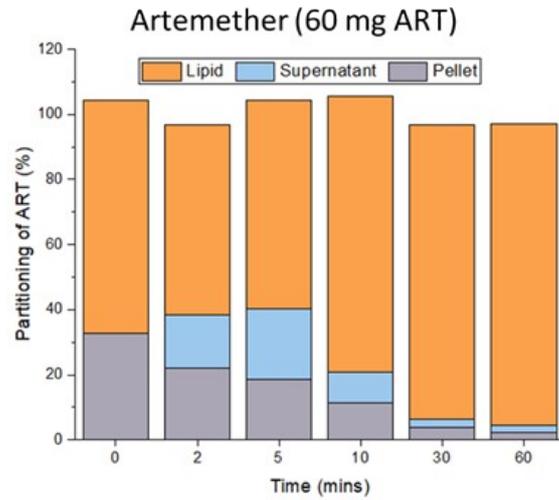


Figure S2. Partitioning of artemether in the upper lipid layer, supernatant layer and the pellet year separated by ultracentrifugation during 60 mins digestion in 3.8 w/v% infant formula by pancreatic lipase (n=1).

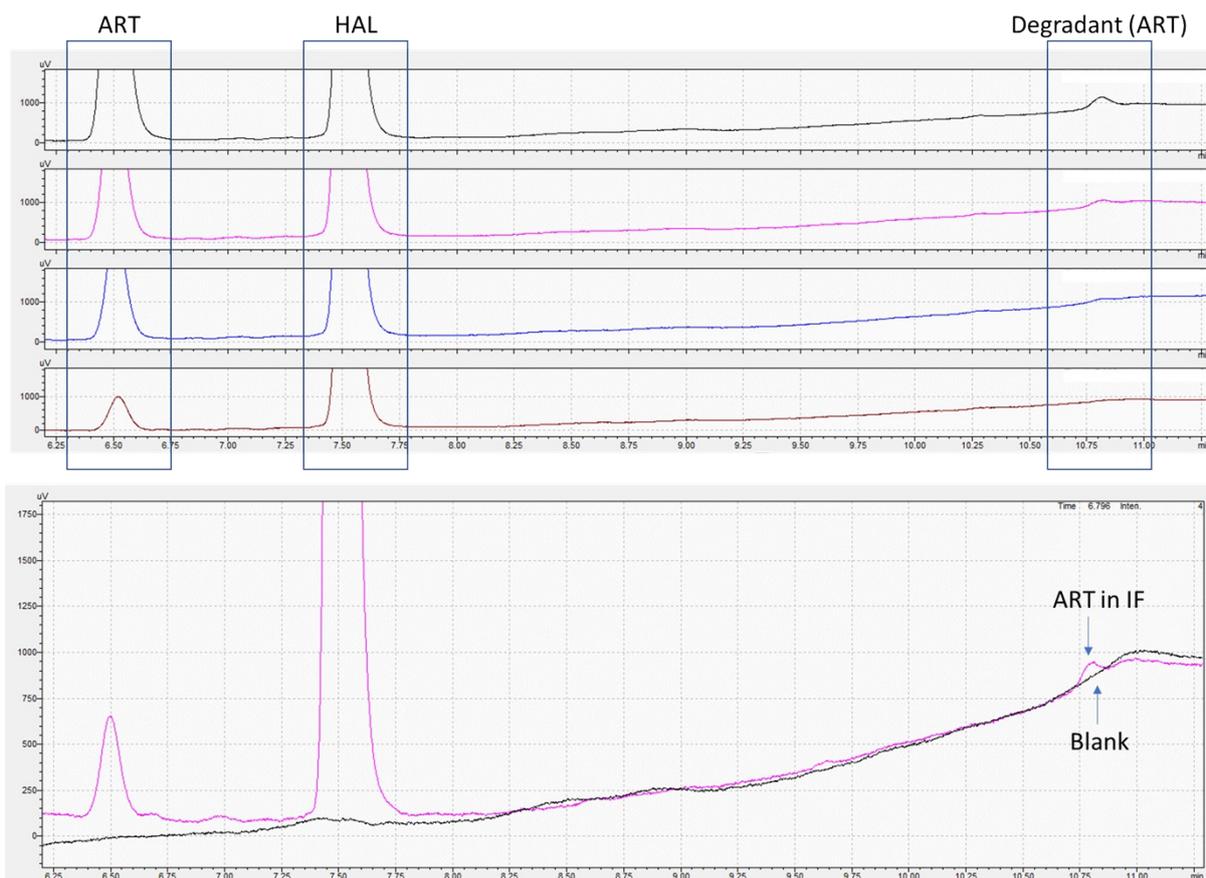


Figure S3. Top: HPLC chromatogram of artemether (ART) and halofantrine (HAL) at increasing artemether concentrations that show presence of a degradant. Bottom: HPLC chromatogram of artemether in infant formula after 24 hrs incubation at 37 °C.