

Table 1: Preparation of nanogels

Compositions	Plain nanogels (g)			ART-loaded nanogels (g)		
	C971	PAPP	P407	C971	PAPP	P407
Carbopol 971P NF	5.0	-	-	5.0	-	-
<i>Prosopis africana</i> peel powder (PAPP)	-	5.0	-	-	5.0	-
Poloxamer 407	-	-	13.2	-	-	13.2
Propylene glycol	10	10	12	10	10	12
Ethanol	10	10	4.9	10	10	4.9
Triethanolamine	Drop	Drop	-	Drop	Drop	-
Placebo NLC (zero drug)	45	45	45	-	-	-
ART-NLC formulation	-	-	-	45	45	45
Purified water	10	10	4.9	10	10	4.9

Legends:

ART-NLC refers to NLC formulation containing ART, the amount of 45g which was added to the polymer hydrogels to make nanogels of each polymer (C971, PAPP and P407).

Placebo NLC refers to the nanogels prepared from NLC without ART, formulated in each polymer hydrogel (C971, PAPP and P407)

Table 2: Physicochemical properties of formulations

Formulation	Drug content (%)		Spreadability (% ± SD)	<i>In vitro</i> occlusivity (F)	
	24 h	6 months		24 h	48 h
C971-ANG	87.93 ± 0.21	86.20 ± 1.31	455.0 ± 0.08	55	60
PAPP-ANG	91.05 ± 0.10	90.11 ± 2.10	435.0 ± 0.19	65	66
P407-ANG	97.32 ± 0.11	95.38 ± 1.21	540.0 ± 0.23	68	69
Placebo C971	-	-	650.0 ± 0.04	40	42
Placebo PAPP	-	-	610.0 ± 0.12	45	50
Placebo P407	-	-	670.0 ± 0.12	50	54
Plain gel C971	-	-	700.0 ± 0.07	45	48
Plain gel PAPP	-	-	689.0 ± 0.14	47	50
Plain gel P407	-	-	705.0 ± 0.06	52	55

Legend: C971-ANG, PAPP-ANG and P407 ANG means ART nanogel prepared from polymers (C971, PAPP and P407) containing 45 g freeze-dried ART-NLC particles respectively. Placebo C971, PAPP and P407 means nanogels containing 45 g freeze-dried NLC particles without ART. Plain gel refers to hydrogels prepared from polymers (C971, PAPP and P407) only without NLC particles.

Table 3 : Drug release kinetics of formulations

Formulation	Zero order	First order	Higuchi	Korsmeyer-Peppas	
	r^2	r^2	r^2	r^2	n
C971-ANG	0.865	0.978	0.987	0.879	0.747
PAPP-ANG	0.852	0.862	0.998	0.745	0.725
P407-ANG	0.887	0.945	0.996	0.762	0.672
ART-NLC	0.921	0.932	0.989	0.765	0.725

Legend: C971-ANG, PAPP-ANG and P407 ANG means ART nanogel prepared from polymers (C971P, PAPP and P407) containing 45 g freeze-dried ART-NLC particles respectively; r^2 is squared correlation coefficient; 'n' is drug release exponent in Korsmeyer-Peppas release model