

Supplementary Materials: Optimization and Transfollicular Delivery of Finasteride-Loaded Proniosomes for Hair Growth Stimulation in C57BL/6Mlac Mice

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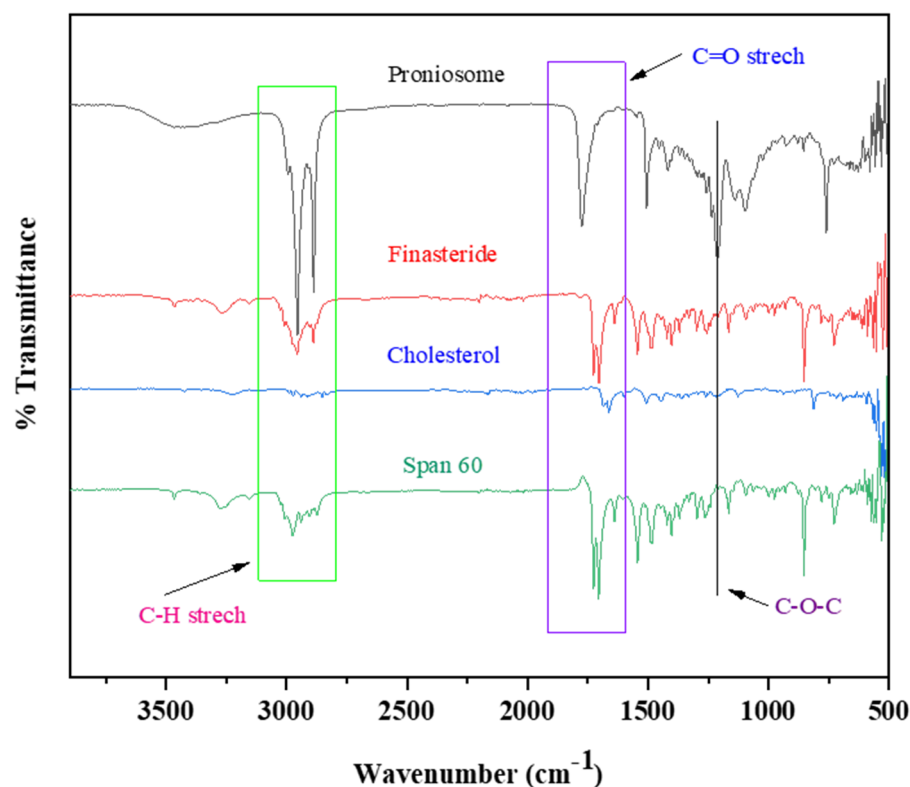


Figure S1. ATR-FTIR spectra of proniosome, finasteride, cholesterol, and span 60.

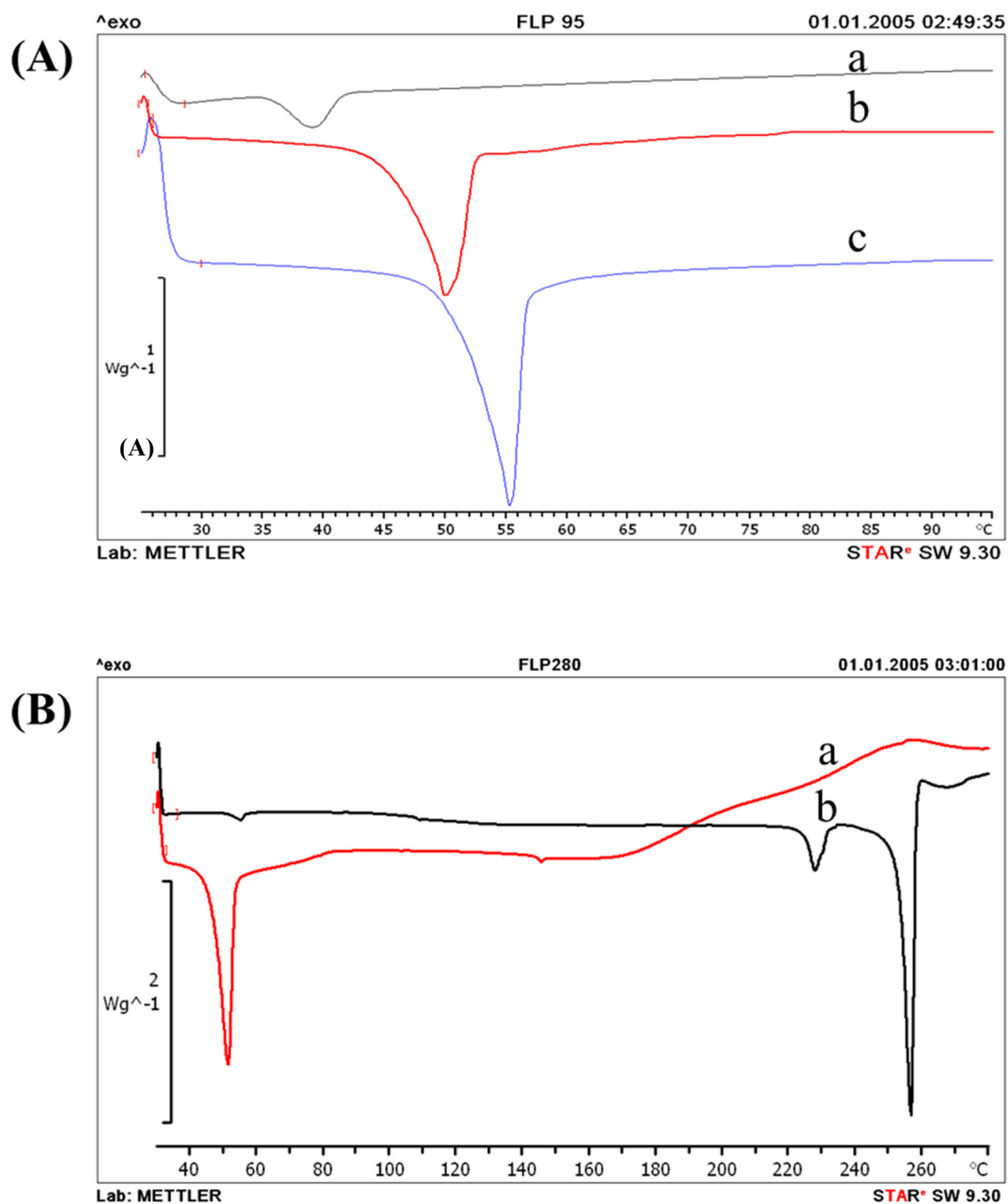


Figure S2. DSC thermograms of FLP and pure compositions: Figure (A): cholesterol a, FLP b and span 60 c scanned 25 – 95 °C; Figure (B): FLP a and bulk finasteride b scanned 30 – 280 °C.

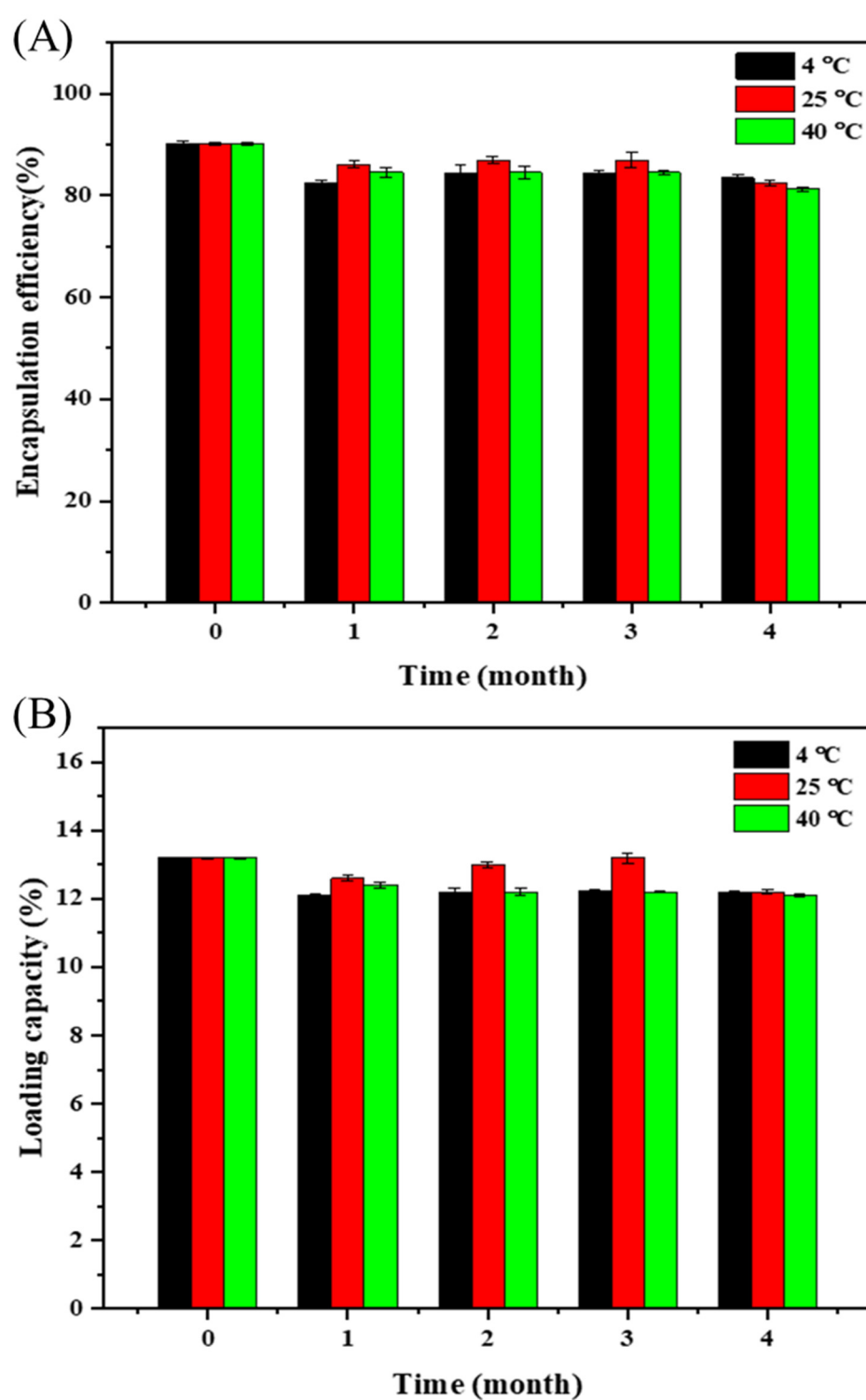


Figure S3. The impact of time and temperature during storage. (A) Encapsulation and (B) Loading capacity of FLP.

Table S1. Components of finasteride-loaded proniosomes.

No. of the experiment	Finasteride)mg(Cholesterol)mg(Span 60 (mg(
1	230.61	309.30	309.30
2	55.88	579.93	579.93
3	11.55	309.30	309.30
4	121.08	309.30	309.30
5	55.88	193.31	193.31
6	121.08	309.30	309.30
7	121.08	309.30	309.30
8	121.08	309.30	309.30
9	186.27	579.93	579.93
10	121.08	309.30	309.30
11	121.08	439.35	439.35
12	121.08	309.30	309.30
13	55.88	347.96	347.96
14	121.08	49.18	49.18
15	186.27	193.31	193.31
16	186.27	115.99	115.99
17	121.08	569.41	569.41
18	186.27	347.96	347.96
19	121.08	179.24	179.24
20	55.88	115.99	115.99

Table S2. Components of finasteride-loaded proniosomes. *phosphate buffer solution pH 7.4 and ethanol at ratio of 1:1.

Formulation	Finasteride (mg)	Cholesterol (mg)	Span 60 (mg)	Total lipid (mg)
0.1% finasteride loaded-proniosomes	7.76	197.18	219.62	416.8
0.5% finasteride loaded-proniosomes	31.05	197.18	219.62	416.8
1% finasteride loaded-proniosomes	62.09	197.18	219.62	416.8
1% finasteride solutions*	62.09	-	-	-

Table S3. ANOVA for the responses of finasteride-loaded proniosomes in CCD.

Response	Source	SS	Df	MS	F-value	p-value
Mean	Model	23467.5026	9	2607.5003	666.5085	0.0000 ^c
Particle	X ₁	6.6996	1	6.6996	1.7125	0.2270
Size	X ₂	8114.7108	1	8114.7108	2074.2179	0.0000 ^c
	X ₃	5846.5125	1	5846.5125	14944391	0.0000 ^c
	X ₁ X ₂	490.3626	1	490.3626	125.3430	0.0000 ^c
	X ₁ X ₃	662.9122	1	662.9122	169.4458	0.0000 ^c
	X ₂ X ₃	28.4225	1	28.4225	7.2651	0.0273 ^a
	X ₁ ²	2052.4421	1	2052.4421	524.6289	0.0000 ^c
	X ₂ ²	63.6608	1	63.6608	16.2725	0.0038 ^b
	X ₃ ²	40.7819	1	40.7819	10.4244	0.0121 ^b

	Lack of fit	19.4241	3	6.4747	2.7266	0.1539 ^{ns}
	Cor total	23498.8	17			
%EE	Model	843.6348	9	93.7372	117.4562	0.0000 ^c
	X ₁	96.8652	1	96.8652	121.3757	0.0000 ^c
	X ₂	241.6361	1	241.6361	302.7791	0.0000 ^c
	X ₃	0.1117	1	0.1117	0.1400	0.7193 ^{ns}
	X ₁ X ₂	28.4029	1	28.4029	35.5899	0.0006 ^c
	X ₁ X ₃	15.9996	1	15.9996	20.0482	0.0029 ^b
	X ₂ X ₃	4.3887	1	43.887	0.0000	0.9943 ^{ns}
	X ₁ ²	118.4723	1	118.4723	148.4502	0.0000 ^c
	X ₂ ²	228.9681	1	228.9681	286.9056	0.0000 ^c
	X ₃ ²	3.1221	1	3.1221	3.9121	0.0885 ^{ns}
	Lack of fit	3.0996	2	1.5498	3.1161	0.1322 ^{ns}
	Cor total	849.2212	16			
Drug Loading Capacity	Model	589.3865	9	65.4874	11523.0040	0.0000 ^c
	X ₁	235.8509	1	235.8509	41499.7525	0.0000 ^c
	X ₂	169.3391	1	169.3391	29796.4992	0.0000 ^c
	X ₃	0.2132	1	0.2132	37.5176	0.0004 ^c
	X ₁ X ₂	30.1607	1	30.1607	5306.9984	0.0006 ^c
	X ₁ X ₃	0.7565	1	0.7565	133.1051	0.0000 ^c
	X ₂ X ₃	1.0212	1	1.0212	179.6830	0.0000 ^c
	X ₁ ²	0.2299	1	0.2299	40.4498	0.0004 ^c
	X ₂ ²	12.5579	1	12.5579	2209.6569	0.0000 ^c
	X ₃ ²	0.0039	1	0.0039	0.6874	0.4344 ^{ns}
	Lack of fit	0.0023	2	0.0011	0.1533	0.8617 ^{ns}
	Cor total	589.4263	16			

X₁: Finasteride concentration, X₂: Total lipid, X₃: Cholesterol proportion in total lipid, SS: Sum of square; Df: degree of freedom; MS: Mean square. ^a = $p < 0.05$, ^b = $p < 0.01$, ^c = $p < 0.001$, and ^{ns} = non-significant ($p > 0.05$).