

Title: Formulation of topical finasteride and evaluation of its percutaneous absorption.**Authors: Shokri J.¹, Nokhodchi A.², Javadzadeh, Y.³, Ayatollahi, M.⁴, Esnaashari S.⁵, Matin A.A⁶**

Abstract: Topical finasteride formulation is one of the most effective treatments of androgenic or male pattern alopecia. The effectiveness of these formulations strongly depends on the penetration of the drug through scalp skin. In this study, we tried to formulate finasteride topical formulation with suitable percutaneous absorption as well as good appearance, consistency, spreadability, viscosity and stability. For this purpose, 14 formulations were prepared using different solvent systems and investigated in the case of stability and physical characteristics. Three different formulations were selected for percutaneous absorption studies. These studies were done by using standard Franz diffusion cells and reverse phase HPLC method. In the second step, three penetration enhancers (SLS, CTAB and transcutool P) with different percents (0.25, 0.5, 1 and 2 w/v %) were added to the base formulation and the effect of them on the skin absorption of finasteride were studied. The results did not show any skin penetration enhancement SLS and CTAB in all percents whereas; transcutool P enhanced the transdermal absorption of finasteride significantly. Optimum percent for transcutool P was determined 1% (w/v). Transcutool P with 0.25% concentration also increased percutaneous absorption of the drug in the first sampling time (15min). Inability of SLS and CTAB in enhancement of the drug penetration through the skin probably aroused from drug-enhancer complexation and formation of micelles with low penetration ability containing the drug molecules.

Keywords: Topical finasteride, Percutaneous absorption, Androgenic alopecia, Penetration enhancers.

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(T.P) CTAB SLS
(/ / /)
HPLC CTAB SLS
T.P
/ %
CTAB SLS

Archive of SID

(Guttesfosse, France)
(SLS)
(CTAB)
HPLC

.(Merck Chemical Co, Germany.)

(Cecil 1100, England) HPLC
/
UV
(METTLER, TOLEDO, Switzerland)
(Strasonic, Italy)
.(Erweka, Germany)

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(Centaur Chem Co. PVT.LTD India)

HPLC

:

CECIL 1100 :HPLC

Novapak C18 :

/ ×

/

(pH=6.8) :

/

:

°C

(Intraday)

()

(Interday)

(/)%

()

()

Millipore

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(SLS)

(CTAB)

(T.P)

()

/ / /

F₇ F₃ F₁

HPLC

(%w/v) T.P	CTAB (%w/v)	SLS (%w/v)	
/			F ₁₅
/			F ₁₆
			F ₁₇
			F ₁₈
	/		F ₁₉
	/		F ₂₀
			F ₂₁
			F ₂₂
		/	F ₂₃
		/	F ₂₄
			F ₂₅
			F ₂₆

(%v/v) Water	2- propanol (%v/v)	PG (%v/v)	
			F ₁
			F ₂
			F ₃
			F ₄
			F ₅
			F ₆
			F ₇
			F ₈
			F ₉
			F ₁₀
			F ₁₁
			F ₁₂
			F ₁₃
			F ₁₄

F₃

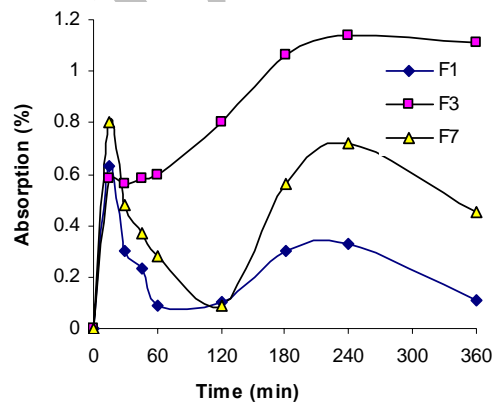
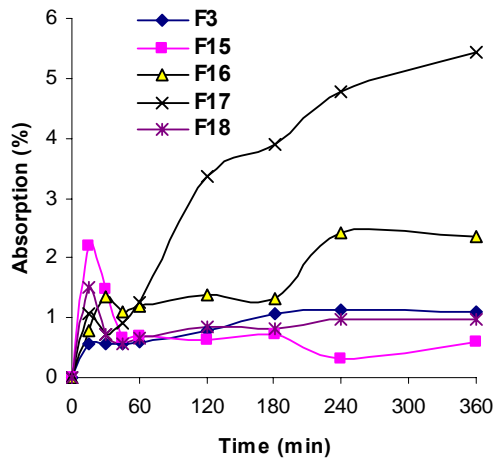
F₃

(F₇,F₃,F₁)

(T.P)

(F₁₈ F₁₅)

(F₃)



Archiv

P

(F₁₇) %

/

/ / /

F₁₇ / /

/ F₁₅

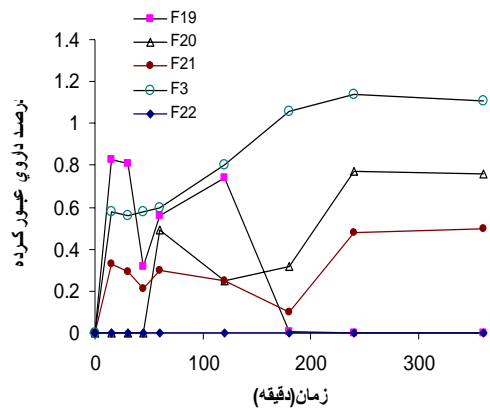
F₇ F₃ F₁

/ / / / /

F17

(/)

CTAB



CTAB

CTAB

SLS

in-vivo

/ % T.P

/ / / /
T.P /
/ / / / /

(/ /)
()

%

()

()

()

(SLS CTAB)

Archive of SID

(Burst transportation)

CTAB SLS

()

SLS

CTAB
SLS

in-vivo

CTAB

()

Archive of SID

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