

Transport of niosomal aminexil through whole abdominal skin of rats

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Abstract

Introduction:

Androgenetic alopecia (AGA) is a common disease in both male and female genders which affect millions of people worldwide.

Minoxidil and Aminexil can improve the blood supply of hair follicles by different mechanisms. Here, we report for the first time, the preparation and physicochemical evaluation of aminexil niosomes.

Methods and Results:

We developed new niosome encapsulated aminexil formulation composed of sorbitan esters (SpanTM), their ethoxylated derivatives (TweenTM) with cholesterol by lipid film hydration method. Four molar ratio were used. The suspension was centrifuged and the absorbance of the supernatant analyzed by UV spectrophotometer at the λ max. The morphological studies of niosomes of aminexil have been done by using transmission electronic microscope (TEM). Size distribution were evaluated by Malvern size analyzer. Release rate of niosomal aminexil was evaluated by Franz diffusion cell through abdominal skin of rat.

Results showed that the prepared niosomes has good physical stability depicted as unchanged size distribution curves during six month storage formulation composed of the highest encapsulation. The formulation prepared was stable at room temperature. Slow and biphasic release profile of aminexil was also shown which could be contributed to slow diffusion of aminexil through lipid bilayer.

Conclusions:

It can be concluded that niosomes can be used as stable carriers for topical delivery of aminexil.

Key words: Aminexil, Niosomes, Vesicular stability, AGA, Sorbitan esters