Proniosomes as Nano-Carrier for Transdermal Delivery of Atenolol Niosomal Gel

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Abstract

Objective of the study is to prepare Proniosomes that refers to a flexible vesicular carrier with the potential for drug administration through the transdermal route. Medthod: Proniosomes were prepared by the coacevation-phase separation technique The prepared formulations were evaluated for vesicle size, entrapment efficiency. The optimal poniosomes formula (A8) was prepared with different aqueous phase, incorporated in a gel base and studied for pH, viscosity, spredapility, stability, in vitro drug release and ex vivo permeation. Results: Niosomes formulations prepared with Span 40 and 60 have spherical and smaller Nano size. 25 mg atenolol loading has resulted 190.9 ± 15.033 nm sizes. EE% of the optimum formula prepared with distilled water was 62.11 to 92.38 .Rheological behavior showed combined shear thinning and thixotropic and gel was spreadable . Tested formulations were stable on cooling (4-8 oC) . In vitro drug release followed zero order kinetic, and gave sustained release. Release rate was significantly higher across cellulose membrane compared with rate skin. Amount of drug obtained after skin extraction was 92.6 ± 0.5% indicate enhanced permeation rate. Conclusion: All the proniosomal gel formulations were found through the acceptable range of vascular size and entrapment efficiency. Formulation A8 has been selected as an optimized therapeutic system of atenolol.

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