



Formulation of Aloe vera polysaccharide gel niosomes

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Abstract:

Aloe gel has anti-inflammatory properties and frequently is used in topical drug dosage forms and cosmetics.

Purpose: Hereby is the first report on niosomal formulation of its gel for topical sustained release. A combination of Spans (20, 40, 60 and 80) and Tweens (20, 40, 60 and 80) with different cholesterol molar percents was used for niosome preparation. UV spectrophotometry was utilized for determination of encapsulated glucomannan in vesicles. Physical stability of the vesicles, release of the active substance, particle size analysis and morphological characterization were studied. The release of the polysaccharides was best fitted by Peppas model. ST 20 and 80 didn't form stable formulation but ST 40 and 60 formed round and stable niosomes due to gel state nature of Span 40 and 60. Encapsulation efficiencies were more than 60% which was increased following cholesterol content increment, non-significantly. Less than 20% of the encapsulated gel was released during 4 h. Niosomes could be used for topical delivery of Aloe gel due to slow diffusion-based release rate of Aloe gel and the high stability of the prepared vesicles. Lipid vesicles have penetration enhancing properties, hopefully resulted in better efficacy of the gel in topical administration.

Keyword: Niosomes, Aloe vera, Glucomannan