Niosomal transdermal gel formulation of curcumin having anti-inflammatory effect in experimental rat models

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ABSTRACT

Curcumin is an isolated active compound of the spice turmeric, has a long history as a medicinal herbal for a variety of diseases. Transdermal drug delivery like niosomal gel as a transdermal formulation has been recognized as an alternative route to oral delivery. In this study, curcumin was formulated into niosome; characterized by light microscopy and their drug entrapment efficiency. Curcumin-niosomes were formulated again into gel: ex vivo drug permeation and in vivo anti-inflammatory effect were evaluated. The result showed that Formula B (span 60: cholesterol = 7:3 in mmol ratio) has the best characters: morphology surface (multilamellar vesicles), particle size (1-5 µm) and entrapment efficiency (61.22±0.004%). Formula B that formulated onto gel has an anti-inflammatory effect on peptone-induced inflammation. In conclusion, our data show that curcumin successfully formulated as niosomal transdermal gel and are possible candidates as anti-inflammation therapies.

Keywords: curcumin, niosomal gel and anti-inflammation