

# Formulation and evaluation of curcumin gel for topical application.

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## Abstract

The aim of the present investigation was to develop and study topical gel delivery of curcumin for its anti-inflammatory effects. Carbopol 934P (CRB) and hydroxypropylcellulose (HPC) were used for the preparation of gels. The penetration enhancing effect of menthol (0-12.5% w/w) on the percutaneous flux of curcumin through the excised rat epidermis from 2% w/w CRB and HPC gel system was investigated. All the prepared gel formulations were evaluated for various properties such as compatibility, drug content, viscosity, in vitro skin permeation, and anti-inflammatory effect. The drug and polymers compatibility was confirmed by Differential scanning calorimetry and infrared spectroscopy. The percutaneous flux and enhancement ratio of curcumin across rat epidermis was enhanced markedly by the addition of menthol to both types of gel formulations. Both types of developed topical gel formulations were free of skin irritation. In anti-inflammatory studies done by carrageenan induced rat paw oedema method in wistar albino rats, anti-inflammatory effect of CRB, HPC and standard gel formulations were significantly different from control group ( $P < 0.05$ ) whereas this effect was not significantly different for CRB and HPC gels formulations to that of standard (diclofenac gel) formulation ( $P > 0.05$ ). CRB gel showed better % inhibition of inflammation as compared to HPC gel.

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