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RESEARCH ARTICLE

Errata

Formulation and Evaluation of *Amomum subulatum* Leaf Oil Incorporated Pluronic Matrix Type Transdermal Patches in Percutaneous Absorption

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Abstract

A matrix type of transdermal patch formulations having different types of hydrophilic, hydrophobic polymer components Diclofenac potassium (Diclofenac K) served as the model drug and penetration enhancer for topical delivery in this research, employing the USP7 apparatus for dissolution studies. Transdermal patches loaded with *Amomum subulatum* leaf volatile oil (utilized penetration enhancer) were formulated using the solvent evaporation technique, incorporating varying amounts of pluronic F-127 and ethyl cellulose based on 15 formulations designed by the Box Behnken model. The prepared patches underwent evaluation for various physicochemical parameters, including tensile toughness, moisture content, and moisture uptake. *In vitro* diffusion studies were conducted using the USP7 apparatus dedicated to transdermal drug release investigations. The optimized formulation, F10, exhibited a drug release of 82% over 24 hours in the *in vitro* diffusion study. All the transdermal matrix-type formulations demonstrated satisfactory results, indicating that the developed matrix-type transdermal patch, containing different polymers and the *A. subulatum* leaf volatile oil penetration enhancer, holds potential for transdermal delivery in the treatment of pain and swelling.

1. Introduction

Amomum leaf oil was extracted from *A. subulatum* of the family Zingiberaceae GC and GC-MS examination results show that it has 39 components, of which terpinene-4-ol (29.87%), eucalyptol (18.69%), β-phellandrene (7.97%), γ-terpinene (6.67%), p-cymene (6.20%), were found as significant constituents. Oxygenated monoterpenes were the predominant constituents in the essential oil of *A. subulatum*, accounting for 59.03% of the total oil content4.

4. Conclusion

The Diclofenac potassium Transdermal patch of using plurenic F127 and ethyl cellulose as rate- controlling polymers and *A. subulatum* oil as a natural penetration enhancer were prepared and optimized using central composite statistical design. A patch containing a

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higher concentration of polymer ethyl cellulose and plurenic F127 of formulation F10 showed drug releases to 82%, respectively, and up to 24 h of polymers showed maximum values of the drug release. *In vitro,* work concluded that the drug release from the patch containing *Amomum* oil as a penetration enhancer gives better results up to 24h. Hence present study demonstrates that plurenic F127 polymer and natural permeation enhancer with drug may be successfully employed as a drug carrier and permeation enhancer for controlled and desirable drug delivery applications with additional health benefits.