

The nonpsychoactive cannabinoid, cannabidiol (CBD), has great potential for the treatment of chronic and 'breakthrough' pain that may occur in certain conditions like cancer. To fulfill this goal, suitable noninvasive drug delivery systems need to be developed for CBD. Chronic pain relief can be best achieved through the transdermal route. Combining IN and transdermal delivery for CBD may serve to provide patient needs-driven treatment in the form of a nonaddictive nonopioid therapy. Department of Pharmaceutical Sciences, College of Pharmacy, University of Kentucky, Lexington, KY 40536-0082, USA The achievement of a significant steady-state plasma concentration indicates that CBD is useful for chronic pain treatment through this route of administration. The results of this study indicated that CBD could be successfully delivered through the IN and transdermal routes.

CBD Isolate – Transdermal cannabidiol reduces inflammation and pain – arthritis.

Department of Pharmaceutical Sciences, University of Kentucky College of Pharmacy, Lexington, KY, 40536-0082, USA.

Department of Physiology, University of Kentucky College of Medicine, Lexington, KY, 40536-0298, USA.

Current arthritis treatments often have side-effects attributable to active compounds as well as route of administration. Cannabidiol (CBD) attenuates inflammation and pain without side-effects, but CBD is hydrophobic and has poor oral bioavailability. Topical drug application avoids gastrointestinal administration, first pass metabolism, providing more constant plasma levels.

Transdermal CBD significantly reduced joint swelling, limb posture scores as a rating of spontaneous pain, immune cell infiltration and thickening of the synovial membrane in a dose-dependent manner. Exploratory behaviour was not altered by CBD indicating limited effect on higher brain function. Using the CBD Patch driving and daily activities can continue as normal, you will not feel spaced out, dehydrated or out of balance with the patch. This is a boon for anyone wanting to maintain and/or improve cognitive function as the last thing you would want is the brain fog, high or hallucinations experienced with using cannabis edibles and oils

These data indicate that topical CBD application has therapeutic potential for relief of arthritis pain-related behaviours and inflammation without evident side-effects. © 2015 European Pain Federation – EFIC®

CBD may exert neuroprotective effects against EAE. All these data suggest an interesting new profile of CBD that could lead to its introduction in the clinical management of MS and its associated symptoms at least in association with current conventional therapy. A new formulation of cannabidiol shows therapeutic effects of experimental autoimmune encephalomyelitis.

1 IRCCS Centro Neurolesi “Bonino-Pulejo”, Via Provinciale Palermo, contrada Casazza, 98124, Messina, Italy.

2 Dipartimento di Scienze del Farmaco, Università del Piemonte Orientale, Largo Donegani 2, 28100, Novara, Italy.

3 Consiglio per le Ricerca e la sperimentazione in Agricoltura – Centro di Ricerca per le Colture Industriali (CRA-CIN), Viale G. Amendola 82, 45100, Rovigo, Italy.

4 IRCCS Centro Neurolesi “Bonino-Pulejo”, Via Provinciale Palermo, contrada Casazza, 98124, Messina, Italy. emazzon.irccs@gmail.com.

Cannabidiol-transdermal delivery and anti-inflammatory effect. Department of Pharmaceutics, School of Pharmacy, Faculty of Medicine, The Hebrew University of Jerusalem, 91120, Israel. ethosomes enable CBD's skin permeation and its accumulation in a depot at levels that demonstrate the potential of transdermal CBD to be used as an anti-inflammatory treatment. However, its oral administration is associated with a number of drawbacks. The objective of this study was to design a transdermal delivery system for CBD by using ethosomal carriers. CBD ethosomes were characterized by transmission electron microscopy, confocal laser scanning microscopy and differential scanning calorimetry. Transdermal application of ethosomal CBD prevented the inflammation and edema

Transdermal delivery of cannabidiol attenuates binge alcohol-induced neurodegeneration of an alcohol use disorder. Department of Pharmaceutical

Sciences, College of Pharmacy, University of Kentucky, 789 S. Limestone St., Lexington, KY 40536, USA. Excessive alcohol consumption, characteristic of alcohol use disorders, results in neurodegeneration and behavioral and cognitive impairments that are hypothesized to contribute to the chronic and relapsing nature of alcoholism. These results demonstrate the feasibility of using CBD transdermal delivery systems for the treatment of alcohol-induced neurodegeneration. This experiment found similar magnitudes of neuroprotection. © 2013.

Human skin permeation of Delta8-tetrahydrocannabinol, cannabidiol and cannabinol. Division of Pharmaceutical Sciences, College of Pharmacy, University of Kentucky, Lexington, KY 40536-0082, USA. The purpose of this study was to quantify the in-vitro human skin transdermal flux of Delta8-tetrahydrocannabinol (Delta8-THC), cannabidiol (CBD) and cannabinol (CBN). These cannabinoids are of interest because they are likely candidates for transdermal combination therapy. CBD, the most polar of the three drugs for improved transdermal delivery rates.

Self-initiated use of topical cannabidiol oil for epidermolysis bullosa

1 School of Medicine, Stanford University, Stanford, CA, USA.

2 Department of Dermatology, West Virginia University, Morgantown, WV, USA.

3 Department of Dermatology, School of Medicine, Stanford University, Stanford, CA, USA.

Epidermolysis bullosa is a rare blistering skin disorder that is challenging to manage because skin fragility and repeated wound healing cause itching, pain, limited mobility, and recurrent infections. Cannabidiol, an active cannabinoid found in cannabis, is postulated to have anti-inflammatory and analgesic effects. We report 3 cases of self-initiated topical cannabidiol use in patients with epidermolysis bullosa in an observational study. One patient was weaned completely off oral opioid analgesics. All 3 reported faster wound healing, less blistering, and amelioration of pain with cannabidiol use. © 2018 Wiley Periodicals, Inc.