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DEVELOPMENT OF VESICULAR DRUG DELIVERY SYSTEM FOR TINOSPORA CORDIFOLIA

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Back ground: Tinospora cordifolia is a herb exhibiting anti-inflammatory, anti-psoriatic, anti-rheumatic activities. The NSAIDS upon prolonged usage exhibit severe adverse effects like gastro intestinal problems, peptic ulcers, and cardio vascular problems.Tinospora cordifolia ethosomal gel can be considered as a alternative formulation to relieve pain and inflammation. As this herb possess poor solubility and bioavailability the solubility and Bioavailability can be enhanced by adopting vesicular drug delivery systems such as ethosomes.

Hypothesis: The aim of the present study is to develop Ethosomal formulation of Tinospora cordifolia using cold method of preparation and to study its anti-inflammatory property on albino rats.

Methodology: The dried stem extract of Tinospora cordifolia was obtained using soxhlet apparatus.In phytochemical screening tests, the presence of Tannins,Flavanoids, Saponins, Ammino acids and proteins was observed.TLC revealed the methonalic stem extract of Tinospora cordifolia contains Tannins. Mobile phase taken as n-hexane, Ethylacetate and Glacialacetic acid in different ratios such as 5:4:1,6:3:1,and7:2:1.Rf values were calculated for different bands and the values were found to be 0.76 for the standard tannic acid and 0.73 for the stem extract of Tinospora cordifolia indicate the presence of Tannins,0.84 conform the presence flavaniods and 0.56 reveals the presence of phenols respectively.Six formulations were prepared by taking different concentrations extract by cold methods.,i.e.,E1,E2,E3,E4,E5,E6.

Result: The maximum Entrapment efficiency of E1formulation as determined by ultracentrifugation was 96%.Methanolic extract of ethosomal formulation of Tinospora cordifolia has shown drug release of 96.84%, Zeta potential of -32.7mV. Hence E1formulation was considered to be the best formulation among all the formulations. The best formulation was further developed into ethosomal gel. The pH value for ethosomal gel of Tinospora cordifolia was found to be 6.4.Ethosomal gel was showing better In vitro diffusion of 45.2% and the drug content of 95.3%. Anti-inflammatory activity was tested for the ethosomal gel of Tinospora cordifolia and was compared with the diclofenac gel. Anti- inflammatory activity after 3hrs was found to be 45.80% for the ethosomal gel.

Conclusion: Ethosomal formulation was prepared for Tinospora cordifolia. The best formulation was converted to gel. Anti-inflammatory activity was studied for the prepared herbal gel and compared with diclofenac gel. The herbal ethosomal gel was showing promising anti-inflammatory activity.

Key words: Mean vesicle diameter, Entrapment efficiency, Drug content, Drug diffusion studies, ethosomal gel, Tinospora cordifolia