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Herbal ethosomes of ethanolic extract of *Ipomea cairica* Linn

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Abstract
Ipomea cairica Linn. (Leaves) family Convolvulaceae is perennial twiner herb having some potent phytoconstituents of alkaloids, flavonoids category. The various part of plant posse's pharmacological efficacy. In the present investigation ethanolic extract of leaves was taken and herbal ethosomes was prepared and further evaluated.

Keywords: *Ipomea cairica*, ethosomes, extract

Introduction
Ipomea cairica Linn. (Leaves) is perennial twiner herb with tuberous root commonly known as railway creeper or nili bel belongs to family: Convolvulaceae. Major chemical constituents of plant are lignans, arctigenin, matairesinol, trachelogenin and indole alkaloids. Plant is medicinal used for the treatment of microbial infection, inflammation, pain, liver disorders and in malaria. *Ipomea cairica* Linn. as active constituent is because it posses least or negligible side effect with lots of positive effect. It contains mainly flavonoid compounds and polyphenols which posses good antioxidant activity, scavenges free radical as a result protects connective tissue from deformation. [1-3] Also, it posses additional quality of having antibacterial and antifungal activity thus itself act as preservative. Despite, the usefulness and importance of the plant species in the treatment of infection no any systematic and accurate information on formulation aspects were being carried out so far with proper validation and documentation. Therefore, the present work was conceived.

Methodology
Selection, collection and authentication of plant/plant material
The whole plant of *Ipomea cairica* Linn. was collected in the months of July-Aug. 2020 from the Malwa region, Indore, (M.P.) and identified & authenticated by Botanist, (M.P.) and was deposited in our Laboratory, Voucher specimen No. PCog/AS/037.

Extraction of crude drug
Sample were shattered and screened with 40 mesh. The shade dried coarsely powdered plant material (250gms) were loaded in Soxhlet apparatus and was extracted with ethanol until the extraction was completed. After completion of extraction, the solvent was removed by distillation. The extracts were dried using rotator evaporator. The residue was then stored in dessicator and percentage yield were determined.

Ethosome preparation
Soya phospotidylcholine (Himedia) up to (2 gm) taken dissolved in (30%) of 90% ethanol by use of magnetic stirrer (Remi Motors Mumbai), to this solution fine stream of distilled water (100%) added by use of syringe very slowly, then whole system was stirred for (15- 45 minutes) at (700-900 rpm). [4-7]

Table 1: Preparation of ethosomes containing ethanol extract of *Ipomea cairica* Linn.

Ethosomes	Soya phosphotidyl choine (gm)	Ethanol	Ethanol extract	Distilled Water
ET1	2	30%	2.5%	67.5%
ET2	2	30%	5.0%	65.0%
ET3	2	30%	10.0%	60.0%

Evaluation of Ethosomes [4-7]
Image analysis of ethosomes by optical microscope
Visualization done by image analysis optical microscope (Labomed Microscope, Leica ATC2000, India). The optical microscope is attached with the software Digipro V 4.0, through which image analysis was done, photographs were captured.

Entrapment efficiency of ethosomes
It was determined by using microcentrifuge, 10 ml suspension of ethosome was taken and centrifuged at 15000 rpm for 1 hr, after centrifugation supernatant was collected from tube, and absorbance of superntant was taken at 715 nm.

EE=[Qt-Qs/Qt]*100

EE is the entrapment efficiency, Qt is amount of quercetin and phenols in extract added, Qs is amount detected only in the supernatant.

Vesicular shape and surface morphology (SEM & TEM)
Transmission Electron Microscope (TEM) was used as a visualizing aid for ethosomal vesicles. Samples were dried on carbon-coated grid and negatively stained with aqueous solution of phosphotungstic acid. After drying the specimen was viewed under the microscope. Scanning Electron Microscopy (SEM) was also conducted to characterize the surface morphology of the ethosomal vesicles. One drop of ethosomal system was mounted on clear glass stub, air dried and gold coating is done and visualized under Scanning Electron Microscope.

Results and Discussion

In the present work, ethosomal formulation to enhance transdermal permeation of ethanolic extract of *Ipomea cairica* Linn. was prepared and evaluated using different concentration and optimized formulation was evaluated. Colloidal suspensions of ethosomes were prepared by reported method. Ethosomal system was found to be easy to prepare and composed mainly of phospholipids and ethanol, compounds commonly found in pharmaceutical preparations. The smooth surface of vesicles and surface was confirmed by the images of ethosomes. The SEM and TEM mage was given in respectively. The entrapment efficiency of ethosome was determined. Also, convention cream and novel cream was prepared and evaluated. Hence the formulated ethosomes may be delivering to enhance the trandermal permeation, though a detailed *in vivo*, % drug content and stability studies still need to establish the efficacy and safety profile.

Three batches of Ethosomes (ET1, ET2 and ET3) of ethanolic extract *of Ipomea cairica* Linn. was prepared by solvent dispersion method and was evaluated by optical microscope for the image. The figure was presented in Fig. 1

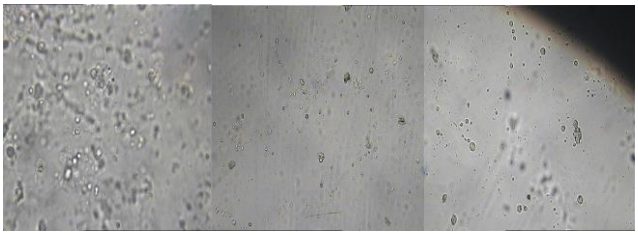
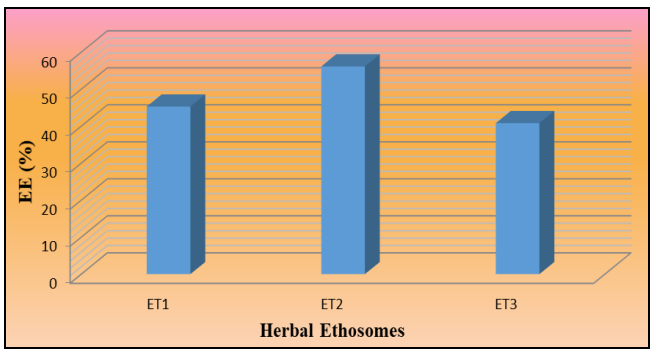


Fig 1: Image analysis of ethosomes

Entrapment efficiency for all the three batches of Ethosomes (ET1, ET2 and ET3) of ethanolic extract *of Ipomea cairica* Linn. was determine. The results were presented in Table 2. From the results it was revealed that the EE of ET2 was found to be maximum 56.14%.

Table 2: Entrapment efficiency of herbal ethosomes containing ethanol extract of *Ipomea cairica* Linn.

S/No.	Herbal Ethosomes	Entrapment efficiency (%)
1.	ET1	45.29
2.	ET2	56.14
3.	ET3	40.81



Graph 1: Entrapment efficiency herbal ethosomes containing ethanolic extract of *Ipomea cairica* Linn.

Vesicular shape and surface morphology was determined by SEM & TEM of optimized batch of herbal ethosomes containing ethanolic extract of *Ipomea cairica* Linn. Fig. 2 shows SEM amd Fig. 3 Shows TEM of optimized ethosomes

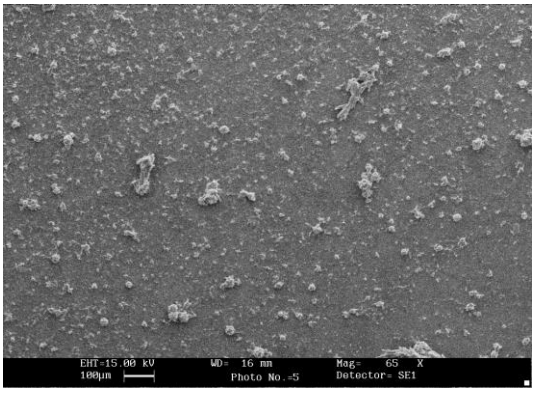


Fig 2: SEM of herbal ethosomes (ET2) containing ethanolic extract of *Ipomea cairica* Linn.

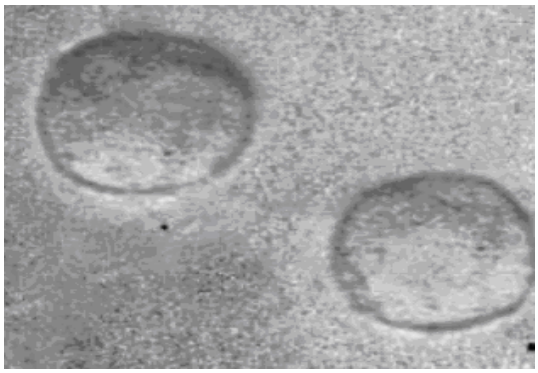


Fig 3: TEM of herbal ethosomes (ET2) containing ethanolic extract of *Ipomea cairica* Linn.

Conclusion

Herbal ethosomes prepared by taking ethanolic extract in different concentration and among all it has been found that ET2 as best ethosomes formed by taking ethanolic extract at all concentration of extract (2.5%, 5% and 10. Entrapment efficiency of ET2 ethosomes found to be higher

References

1. Ashawat MS, Saraf S, Swarnlata Saraf. hytosomes: A novel approach towards functional cosmetics. J Plant Sci,2007:2(6):644-649.
2. Ashawat MS, Saraf S, Swarnlata Saraf. Cosmetic Potentiality of plant extracts and natural oils. Bioscie Bitechnol Res Asia,2006:3:181-188.
3. Kaur CD, Saraf S. Novel approaches in herbal cosmetics. J Cos Dermatol,2008:**7**:89-95.
4. Touitou E, Godin B, Weiss C. Enhanced delivery of drugs into and across the skin by ethosomal carriers. Drug Development Research,2000:50:406-415.
5. Touitou *et al*, Ethosomes- efficiently delivering active agents to skin personal care,2005:6(1):71-74.
6. Dubey V, Mishra D, Dutta T, Nahar M, Saraf DK, Jain NK. Dermal and transdermal delivery of an anti-psoriatic agent via ethanolic liposomes. J Contr Rel,2007:123:148-154.
7. Gupta NK, Dixit VK. Development and evaluation of vesicular system for curcumin delivery. Arch Dermatol Res,2011:303(2):89-101.