INTRODUCTION

Traditional medical systems around the world have long recognized the healing qualities of medicinal plants, and this recognition is only growing. There are a lot of plant species that have chemicals that have pharmacological actions that can cure a lot of different kinds of skin problems and other illnesses. The therapeutic safety, efficacy, diversity, accessibility, and sustainability of medicinal plants are just a few of the benefits they bring to the drug development process. Medicinal herbs are often thought of as safer for long-term usage and have fewer adverse effects than manufactured medications. They specifically target the biological pathways that contribute to the development of skin diseases due to the presence of bioactive chemicals within. Numerous formulations have been developed to address various skin problems and unique patient demands, thanks to the great diversity of medicinal plants. In areas where traditional medicine is prevalent, there is typically a greater availability and affordability of therapeutic plants compared to synthetic medications. A plant that can be consumed is called *Portulaca oleracea* L. In some Chinese provinces, it is also consumed as a vegetable source of nutrition. The use of *P. oleracea* L. in folklore is extensive. Antiseptic, antiscorbutic, and antispasmodic are all uses for this substance. Chinese medicine makes use of it for a variety of purposes, including the prevention and treatment of diabetes and viral hepatitis. The results of a great number of research have demonstrated that this plant possesses a diverse array of pharmacological properties. Since ancient times, *Ammi majus* L., which is also known as ajwain or ova in India, has been utilized extensively in the treatment of a variety of skin conditions, including vitiligo. Furocoumarins, such as xanthotoxin and bergaptons, are produced by this process. These furocoumarins are utilized in the formulation of creams and lotions that are used to treat skin problems. Present work...
based on the formulation of a semisolid O/W emulsion-based herbal cream.

**MATERIALS AND METHODS**

**Collection of Plants**
The *A. majus* Linn and *P. oleracea* Linn were placed from the local region of Sangli, Maharashtra state, India and authenticated by Associate Professor Dr. Sanjay. S. Sathe, Padma. Dr. Vasantaodada Patil Mahavidyalay, Tasgaon, Sangli, Maharashtra.

**Drying, Powdering and Aqueous Extraction of Plant Materials**
*A. majus* Linn leaves and *P. oleracea* Linn leaves were collected, shade dried and powdered. Twice, in 1500 mL of water, 300 g of powder was heated to 70°C for 30 minutes to make the aqueous extracts. After passing over Whatman filter paper, the extract was allowed to evaporate and was subsequently concentrated to a semisolid state on the water bath under atmospheric pressure. Using a hot air oven, a small layer of this was added to a petri dish, and the resulting extract had a yield of 9, 10, and 9%, respectively.

**Animals**
The mice used were male mature albinos weighing 25 to 30 g. In a controlled setting that maintained a 12-hour light-dark schedule while maintaining a temperature of 22 ± 2°C, kept in polypropylene cages and given pellet food and drink as needed. Before the studies were conducted, the animals were given a week to acclimate. In order to conduct the study on animals, the necessary institutional ethics committee approval was sought in accordance with CPCSEA requirements (Registration No: IAEC/ ABCP /15/2015-2016).

**Qualitative Chemical Investigation of Extracts**
In order to identify the different phytoconstituents, qualitative tests were performed on the extracts. 4,5

**Cream Preparation**
Emulsion systems that are semisolid and described as opaque are what creams are. They are applied to the skin, hair, or mucous membranes. What kind of materials are in the internal phase and whether the cream is w/o or o/w determine rheologic parameters and the cream’s homogeneity. We prepared a cream based on an O/W emulsion. Part A, the oil phase, was heated to 75°C and then mixed with stearic acid and other oil-soluble components and water extracts of *A. majus* Linn and *P. oleracea* Linn. Part B, the aqueous phase, was heated to 75°C after dissolving water-soluble preservatives and other components and water. The emulsifier was cooled afterward heating, and the oil phase was added to the water phase in parts while stirring constantly.6 In Table 1, the cream’s formula is given.

**Evaluation**
Cream was assessed for subsequent physical constraints 7

*Color and appearance*
The cream was inspected visually for color and appearance.
After seven days of treatment, the animals’ skin was visually checked for signs of redness and swelling.8

**In-vitro study: Psoriatic skin cell line (HaCaT cell line)**

Using the SRB assay, an in-vitro antipsoriatic research was conducted. HaCaT human keratinocyte cell lines were utilized, which were obtained from NCCS Pune. Cell lines were cultured in a medium that included 10% fetal bovine serum and was prepared according to Dulbecco’s modified Eagle’s protocol.9 The monolayer cell culture was trypsinized and the cell count was adjusted to 1.0x10⁴ cells/mL using growth media. Then, a 96-well plate was seeded with 0.1 mL of the diluted cell suspension, which corresponds to approximately 10,000 cells/well. The monolayer was rinsed once again after the first day. Each well plate was then filled with 100 μL of a drug dilution made using the medium mentioned earlier, after which the liquid above the partially formed monolayer was collected. The plates were examined under a microscope and the results were recorded every 24 hours.10,11 After 72 hours, a total concentration of 10% was reached by layering 25 μL of 50% TCA over the drug dilutions in each well. The next step was to incubate the plates at 4°C for one hour. In order to eliminate any remaining medium, medication, or serum, the culture was delicately mixed five times with tap water before being allowed to air dry.12 After allowing the plates to air dry for 30 minutes, SRB was used to stain them. In the next steps, we used 1% acetic vinegar to quickly wipe out the unbound dye four times.13 Allowing the plates to air dry was the next step. After adding 200 μL of 10 mM tris buffer, the plate should be read at 550 nm using the Elisa plate reader.14,15

**RESULTS AND DISCUSSION**

**Phytochemical Evaluation**

The solvents, extraction methods and obtained percentage yield are mentioned in Table 2.

**Phytochemical Screening**

*A. majus* L (Seed) and *P. oleracea* L (leaves) were found to contain alkaloids, flavonoids, and tannins.

**Data for Cream Formulation**

The developed cream was evaluated for various parameters and the obtained results are given in Table 3.

**Skin Irritation Study**

The skin irritation test was conducted on Swiss albino rats in an in-vivo experiment and results are given in Table 4.

The standard drug (Retino A 0.05% cream) was found to be free from irritation.

An observation indicates acceptability of this cream for topical use.

**References**


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**Table 3: Evaluation parameters of cream formulation**

<table>
<thead>
<tr>
<th>Cream</th>
<th>A. majus Linn and P. oleracea Linn cream</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Yellow-green</td>
</tr>
<tr>
<td>Appearance</td>
<td>No extraneous particles were observed</td>
</tr>
<tr>
<td>pH</td>
<td>5.5</td>
</tr>
<tr>
<td>Viscosity (CPS)</td>
<td>5500</td>
</tr>
<tr>
<td>Extrudability</td>
<td>Good</td>
</tr>
<tr>
<td>Presence of foreign particles/ grittiness</td>
<td>No foreign particles were observed</td>
</tr>
<tr>
<td>Phase separation</td>
<td>No Phase separation</td>
</tr>
</tbody>
</table>

**Table 4: Skin irritation study**

<table>
<thead>
<tr>
<th>Batch</th>
<th>Number of animals</th>
<th>Erythema</th>
<th>Edema</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>06</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Polyherbal cream containing A. majus Linn and P. oleracea Linn</td>
<td>06</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

**CONCLUSION**

The use of an oil-in-water emulsion system successfully created a semisolid cream. Stearic acid was used as an emulsifier, and several oil-soluble components were utilized. These components included white beeswax, cetyl alcohol, stearal alcohol, mineral oil, and aqueous extracts of *A. majus* Linn and *P. oleracea* Linn. A full examination was performed on the cream, which included analyzing its color, appearance, pH, viscosity, phase separation, extrudability, and potential for causing skin irritation. Over the course of 30 days, the cream displayed a number of desirable qualities, such as a high degree of emulsionability, the absence of foreign particles or grittiness, and the absence of phase separation. Through both visual examination and extrudability testing, it was determined that the cream may be used for topical application without any adverse effects. In the course of skin irritation tests carried out on Wistar rats, it was discovered that the cream, which contained herbal extracts, did not cause erythema or edema. This led researchers to conclude that the cream might be considered safe for dermal application. Additionally, in vitro antipsoriatic experiments conducted with the HaCaT cell line exhibited encouraging results, indicating that the cream may have the potential to be useful in the management of psoriatic skin disorders. Taking everything into consideration, the findings indicate that the cream that was developed has the potential as a topical preparation for skin conditions, with the potential to provide therapeutic advantages while posing a minimum risk of discomfort. It is possible that additional research, including clinical trials, will assist in validating its efficacy and safety for practical implementation in dermatological practice.
Formulation and Development of Cream


