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Formulation and evaluation of Multi-purpose Herbal Cream

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Abstract : The present study was aimed to prepare the formulation and evolution of the Multi-purpose herbal cream of *mimosa pudica* and azardichata *indica*. The many Plants have been major source of phytochemical's for human health care system the mimosa pudica plant is also commonly named as lajwanti . mimosa pudica also known as for various medicinal purpose such as anti inflammatory, anti bacterial, wound healing, and affect on dark spots *Azardirachta indica* having Meliaceae family . is arguably the most useful traditional medicinal plant in India it was various medicinal use such as immunomodulatory, antifungal, anti bacterial, anti inflammatory, antioxidant etc.

Keywords : Mimosa pudica, Azadirachta indica, anti inflammatory, anti bacteria

Introduction

The herbal medicines nearly 80% of worldwide population depends on the herbal medicines for primary health care [1] .In Ayurvedic treatment are complied as Charaka Samhita and Sushruta Samhita. The plants and traditional Uses plays important role is socio-cultural life of village communities . The herbal drugs have more precise action and have no side effect and are economic. Mimosa pudica L. is a creeping annual or perennial herb. It has been identified as lajjalu in Ayurveda and has been found to have antiasthmatic, aphrodisiac, analgesic, and antidepressant properties. M. pudica is known to possess sedative, emetic, and tonic properties, and has been used traditionally in the treatment of various ailments including alopecia, diarrhea, dysentery, insomnia, tumor, and various urogenital infections.[2] Neem ingredients are applied in Ayurveda, Unani, Homeopathy, and modern medicine for the treatment of many infectious, metabolic, or cancer diseases Different types of preparation based on plants or their constituents are very popular in many countries in diseases management. In this vista, Neem (Azadirachta indica), a member of the Meliaceae family, commonly found in India, Pakistan, Bangladesh, and Nepal, has therapeutics implication in diseases cure and formulation based on the fact that Neem is also used to treat various diseases [3,4].

Material and methods

Collection of plant material : The *Mimosa Pudica* , *Azadirachta indica* ,can be collected from the Samarth rural educational institution in Samarth Gurukul campus.

Authentication of plant : *Mimosa Pudica* and *Azadirachta indica* plants can be authenticated by Prof. M. S . Khyade in college of Arts, d. J. Malpani commerce &B. N . Sarda Science college Sangmner-422605,; Dist. - Ahmednagar *Mimosa Pudica* Voucher number is 385 and *Azadirachta indica* voucher number is 321.

Preparation of extract :

1.For *Mimosa pudica linn.* :

To collect the plant of *mimosa pudica* and shade dry up to 3 to 4 days. Dired leaves are taken fine powder. 20 gram of leaves powder are soaked in 200 ml of water and methanol and kept for maceration for about the 3 to 4 days . The sample was filtered with muslin cloth for remove the impurities and optain a clear filtrate.

2. For *Azardirachta indica* :

To collect the leaves of *Azardirachta indica* . The leaves are separated and washed with water and dry properly and dried leaves were separated. These are dry in shade up to four to five days and make a coarse powder . Take a 10 gram of powder and soak in 200 ml of methanol And water and kept for maceration Alcoholic decoction was subjected to filtration to obtain a clear .[5]

Preparation of Cream :

Formulation of cream :

Sr.no.	Ingredients	Role of ingredients	F1	F2	F3
1.	*Mimosa Pudica*	Antibacterial, Anti-inflammatory	2.5 ml	2 ml	1.5 ml
2.	*Azadirachta indica*	Promote wound healing, relieves skin dryness, itching and redness.	1 ml	0.5 ml	1.5 ml
3.	Bees wax	Emulsifying agent , stabilizer gives thickness to cream	3 gm	3.5 gm	3.2 gm
4.	Liquid paraffin	Lubricating agent	10 ml	15 ml	12 ml
5.	Borax	Alkaline agent	0.2 gm	0.4 gm	0.3 gm
6.	Methyl paraben	Preservative	0.02 gm	0.04gm	0.03gm
7.	Sandalwood oil	Fragrance	Few drops	Few drops	Few drops

Table No. 1 : Role of ingredients with their formula

procedure for formulation of cream :

Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 ℃ and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methyl paraben In distilled water and heat this beaker to 75 ℃ to dissolve borax and methyl paraben and to get a clear solution. (Aqueous phase). Then slowly add this aqueous phase to heated oily phase,. Then add a measured amount of *Mimosa* pudica l and Neem extract and stir vigorously until it forms a smooth cream. Then add few drops of rose oil as a fragrance. Put this cream on the slab and add few drops of distilled water if necessary and mix the cream in a geometric manner on the slab to give a smooth texture to the cream and to mix all the ingredients properly. This method is called as slab technique or extemporaneous method of preparation of cream.[5]

Evaluation parameters for cream :

1.Physical evaluation:

In this test, the cream was observed for color, odor, texture, state.[6]

2. pH of the Cream :

The pH of the cream was determined using a pH meter and calibrated using standard buffer solution. About 0.5g of the cream was weighed and dissolved in 50.0 ml of distilled water and its pH was measured. Digital pH meter .[7]

3. Phase separation :

Prepared cream was kept in a closed container at a temperature of 25-100 ℃ away from light. Then phase separation was checked for 24 h for 30 d. Any change in the phase separation was observed/checked .

4. Spreadability :

Spread ability= m × l/t

Where,

M= Standard weight which is tied to or placed over the upper slide (30g)

L= length of a glass slide (5 cm)

T= time taken in seconds.[8]

5. Wash ability :

A small amount of cream was applied on the hand and it is then washed with tap water .

6. Thin layer chromatography :

The slides can be taken and clean properly. Make a slurry of silica gel then it will be spread on slide properly. Then it should be kept in hot air oven for evaporation of water content . From the bottom of slide 1cm of extract of Mimosa Pudica and Azadirachta indica can be dropped with the help of capillary tube. Mixing the chloroform : ethyl acetate in equal proportions. Then check the mobile phase and stationary phase movement. Then check the under UV cabinet.

7. Microbial activity : The microbial stability of the cosmetic formulations was evaluated through the microbial contamination test. After being prepared the culture media were autoclaved at 125°C for 20 minutes and then 20 mL of the culture medium was poured into a sterile petri dish. Then 0.2g of the formulation was placed in the center of each petri dish, and then the plates were incubated at 37°C or at 25°C for 3 days according to the inoculated microorganisms. After the incubation period, plates were taken out and checked for microbial growth, which is an indication of contamination. The contamination test was performed using a variety of microorganisms namely Bacteria (Escherichia coli) and Yeast. After the incubation period, the plates were taken out and checked for microbial growth by comparing it with the control. No microbial growth was observed in the formulation. The obtained results confirmed that there was no any growth of microorganisms.

Result and discussion:

Physical evaluation :

In this test colour, odour, texture and state of formulation were checked.

Sr. No.	Parameters	F1	F2	F3
1.	Colour	Faint yellow	Faint yellow	Faint yellow
2.	Odour	Pleasant	Pleasant	Pleasant
3.	Texture	Smooth	Smooth	Smooth
4.	State	Semisolid	Semisolid	Semisolid

Table no. 2: Physical evaluation of cream

pH of cream :

According to the results, the PH of all the three formulations that is F1H, F2H and F3H were found to be nearer to skin PH so it can be safely used on the skin. The pH of F1 , F2 , F3 , are 6.55, 6.48, 6.57 get on auto digital pH meter.

Phase separation :

According to the results no phase separation was observed in all the three formulations.

Sr.no.	Formulation	Phase separation
1.	F1	No phase separation
2.	F2	No phase separation
3.	F3	No phase separation

Table no. 3: Phase Separation observation

Spreadability :

Sr.no.	Formulation	Time (sec)	Spreadability (g×cm/sec)
1.	F1	10	22.8
2.	F2	7	32.4
3.	F3	15	15.8

Table no. 4: Spreadability

Washability :

Washability test was carried out by applying a small amount of cream on the hand and then washing it with tap water. All three formulations were easily washable.

Microbial assay :

No microbial contamination in cream of F1, F2, F3 etc.

Fig no. 1. Microbial activity

Conclusion

By using *Mimosa Pudica* , *Azadirachta indica* extract the cream showed a multipurpose effect and all these herbal ingredients showed significant different activities. Based on results and discussion, the formulations F1, F2 and F3 were stable at room temperature and can be safely used on the skin.

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