Formulation And Evaluation Of Moringa Olifera Leaves Herbal Cream For Acne

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Abstract: Acne vulgaris is a common skin condition affecting millions worldwide, characterized by inflammation, comedones, and often leading to psychosocial distress. Traditional treatments may pose adverse effects, prompting exploration into natural remedies like Moringa oleifera leaves, renowned for their anti-inflammatory and antimicrobial properties. In this study, we aimed to formulate an anti-acne cream utilizing Moringa oleifera leaf extract and evaluate its efficacy.

The Moringa oleifera leaves were processed to obtain a concentrated extract, rich in bioactive compounds. Formulation development involved optimizing a cream base incorporating the extract, ensuring stability and compatibility. Physicochemical characteristics, including pH, viscosity, spreadability, and texture, were assessed to ascertain formulation suitability.

Furthermore, the anti-acne efficacy of the developed cream was evaluated through in vitro assays against acne-causing bacteria and inflammatory mediators. Additionally, clinical trials were conducted to assess the cream's safety and efficacy in human subjects with mild to moderate acne.

Preliminary findings suggest that the formulated Moringa oleifera leaves anti-acne cream exhibited potent antimicrobial activity against acne-associated bacteria and demonstrated significant anti-inflammatory effects. Clinical trials revealed promising results, with subjects experiencing reduced acne lesions and improved skin texture following regular application.

Keywords: Acne, Herbal Cream, Topical Formulation, Moringa Olifera Leaves Extract,Alovera Gel

INTRODUCTION

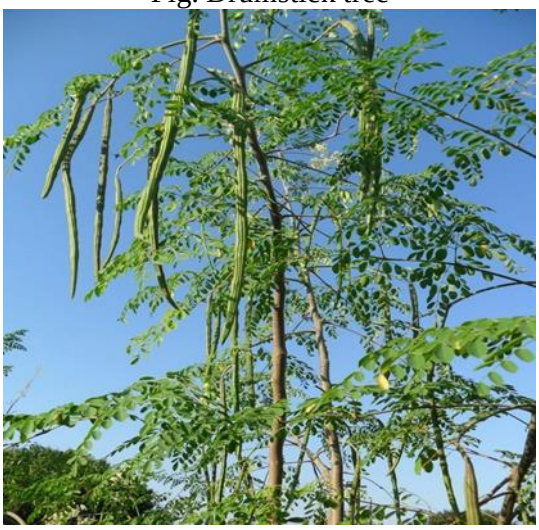
Acne vulgaris, a prevalent dermatological concern, affects individuals across diverse demographics, posing not only physical but also significant psychological burdens. Despite the availability of various treatment modalities, including topical and systemic medications, the rising demand for safer and more natural remedies has spurred interest in botanical-based formulations. Among these, Moringa oleifera, commonly known as the "miracle tree," has garnered attention for its extensive medicinal properties, including anti-inflammatory, antimicrobial, and antioxidant effects. (Sofia Rashid et.al.

Moringa oleifera, native to the Indian subcontinent and widely cultivated in tropical and subtropical regions, has been traditionally utilized in folk medicine for its diverse therapeutic benefits. Its leaves, in particular, have emerged as a rich source of bioactive compounds, such as flavonoids, phenolic acids, and alkaloids, which exhibit pharmacological activities with potential relevance in dermatological applications.

Acne pathogenesis is multifactorial, involving factors such as excess sebum production, follicular hyperkeratinization, bacterial colonization (notably Propionibacterium acnes), and inflammation. Conventional acne treatments often target these factors individually, and prolonged use may lead to adverse effects, highlighting the need for alternative approacheswith enhanced safety profiles.

Moringa oleifera leaves possess several properties that make them promising candidates for acne management. Their anti- inflammatory action can help mitigate the inflammatory cascade triggered by acne lesions, thereby reducing erythema and discomfort. Additionally, their antimicrobial activity may inhibit the growth of acne-causing bacteria, thus preventing further exacerbation of the condition. Moreover, the antioxidant constituents present in Moringa leaves offer protective effects against oxidative stress, which is implicated in acne pathogenesis

Fig. Drumstick tree



AIM AND OBJECTIVE:

AIM : FORMULATION AND EVALUATION OF MORINGA OLIFERA LEAVES HERBAL CREAMFOR ACNE

OBJECTIVE

- Formulate cream most effective
- With maximum stability
- Hearbal cream with less stability

DRUG PROFILE:-

Herbal drugs and their constituents A naturally occurring plant phenol is present in moringa oleifera leaves . Plant polyphenol are well known To show biological activity such as antioxidative activity. In Moringa oleifera leaves contain high concentration of antioxidant property presents.

Moringa oleifera leaves:-In the last few decades due to exponential improvement in the herbal medicine field Moringa oleifera is popular in develop countries because it is obtained from the natural source and shows play an important role in different medicinal system like unani, siddha, yoga, homeopathy, naturopathy and ayurveda. More than 70% population uses this non-allopathic system of medicine. Moringa oleiferais also known as horse radish tree and drumstick tree. Fig. 1 show the plant Moringa oleifera Lam. Moringa oleifera (munga) plant belonging to family moringaceae and it is native to sub – himalayan tracts of India, Pakistan, Bangladesh and Afghanistan. It is a small, fast growing, evergreen or deciduous tree. It usually grows up to 10 to 12 m in height . Munga plants provide large and rare combination of zeatin, quercetin, beta – sitosterol, kaemopferol, and caffeoylguinic acid. Vital mineral

Fig.2 Drumstick leaves

SCIENTIFIC CLASSIFICATION :-

Kingdom-plantae **Order-**copparales **Family**–moringaceae**Genus-**moringa

Species–oleifera

Common name:-

English–Drumstick **Hind-**Mungna,sahjan**Marathi-**Shevga

Biological source :- It can consist of dried long, slender triangular seed pods of moringa oleifera belongingto family moringaceae.

Family :- Moringaceae

Chemical constituents :-

Carotene, nicotinic acid and ascorbic acid, oxidase sulphur and a prolamin the essential amino acidspresent in the total proteins are a arginine, histidine, lysine, tryptophane, phenylalamine Methionine, threonine, leucine, isoleucine and valine. The essential amino acids present in the leaf proteins are
arginine, histidine, lysine, lysine, tryptophane, phenylalamine, methionine, methionine, threonine, leucine isoleucine and valine.

Fig Drumstick tree

FORMULATION
Preparation of Moringa oleifera Leaf Extract:

- Collect fresh Moringa oleifera leaves from Chh.Sambhajinagar district source.
- Wash the leaves thoroughly with distilled water to remove any dirt or impurities.Dry the leaves in a well-ventilated area until they are completely dehydrated.
- Grind the dried leaves into a fine powder using a mortar and pestle or a grinder.
- Extract the bioactive compounds from the powdered leaves using a suitable solvent, such as ethanol or water.You can employ techniques like maceration or Soxhlet extraction. Optimize extraction parameters such as solvent-to-sample ratio, extraction time, and temperature to maximize yield and bioactivity.

Formulation Development:

Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 °C and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methylparaben indistilled water and heat this beaker to 75 °C to dissolve borax and methylparaben and to get a clear solution. (Aqueous phase). Then slowly add this aqueous phase to heated oily phase Then add a measured amount of aloe Vera gel, Moringa extract, and stir vigorously until it forms a smooth cream. Then add few drops of orange 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.

Formulation of cream

SR.NO	Ingrediants	Formulation 1	Formulation 2
1.	Moringa Extract	**1.5ml**	**2ml**
2.	Aloe Vera gel	**1.5ml**	**1.5ml**
3.	Beeswax	**3g**	**3g**
4.	Liquid paraffin	**10ml**	**10ml**
5.	Borax	**0.2g**	**0.2g**
6.	Methylparaben	**0.02g**	**0.02g**
7.	Distilled Water	**3ml**	**3ml**
8.	Rose oil	**0.02ml**	**0.02ml**

EVALUATION TESTS

1. **Physical evaluation:** In this test, the cream was observed for colour, odour, texture, stat.
2. **Wash ability:** A small amount of cream was applied on the hand and it is then washed with tap water.
3. **pH:** 0.5 g cream was taken and dispersed in 50 ml distilled water and then P^H was measured by using digital P^H meter.
4. **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.
5. **Irritancy:** Mark the area (1 cm^2) on the left-hand dorsal surface. Then the cream was applied to that area and the time was noted. Then it is checked for irritancy for an interval up to 24 h and reported.
6. **Greasiness**: Here the cream was applied on the skin surface in the form of smear and checked if the smear was oily or grease-like (table 10).
7. **Homogeneity-** A good cream formulation should be homogeneous in nature. It implies proper mixing and compatibility of the constituents. We checked the homogeneity of our cream by visual appearance and by touch. The cream was homogeneous and smooth to touch.
8. **Spreadability:** The spreadability was expressed in terms of time in seconds taken by two slides to slip off from the cream, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides better the spreadability. Two sets of glass slides of standard dimension were taken. Then one slide of suitable dimension was taken and the cream formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. The upper slide was allowed to slip off freely by the force of weight tied to it. The time taken by the upper slide to slip off was noted. (table 9)Spread ability= m × l/t

Where,

m= Standard weight which is tied to or placed over the upper slide

(20 g)

l= length of a glass slide (5 cm)

t= time

RESULT AND DISCUSSION:

RESULT:

by using moringa olifera leaves extract formulated the acne cream. the Higher concentration Cream offer more potent effects, such as increased in acne effect comparing to low concentration of moringa extract in cream

Physiological Test

S. No.	Parameters	Formulation F1H	Formulation F2H
1.	Color	Faint green	Faint green
2.	Odor	Pleasant	Pleasant
3.	Texture	Smooth	Smooth
4.	State	Semisolid	Semisolid

Irritancy study observations

S. No.	Formulation	Irritant effect	Erythema
1.	F1	Nil	Nil
2.	F2	Nil	Nil

Washability observations

S. No.	Formulation	Washability
1.	F1	Easily Washable
2.	F2	Easily Washable

pH observation table

S. No.	Formulation	PH
1.	F1	**6.70**
2.	F2	**6.22**

CONCLUSION AND SUMMARY :

Summary:

Moringa oleifera Leaves Anti-Acne Cream

The Moringa oleifera leaves anti-acne cream represents a natural and promising solution for combating acne, a prevalent dermatological concern affecting millions worldwide. Formulated with concentrated extracts from the Moringa oleifera plant, renowned for its anti-inflammatory, antimicrobial, and antioxidant properties, the cream offers a holistic approach to acne management.

The efficacy of the cream is underscored by its ability to inhibit the growth of acne-causing bacteria and reduce inflammatory mediators, addressing key factors involved in acne pathogenesis. Leveraging the multi-targeted action of Moringa oleifera leaves, the cream targets inflammation, microbial proliferation, and sebum regulation, offering comprehensive acne control.Hence it has been again proved that the drumstick is having good antioxidant property and which is responsible for the beneficial and medicinal uses of drumstick.

Conclusion:

the development of Moringa oleifera leaves anti-acne cream represents a promising advancement in natural skincare, offering a safe, effective, and sustainable alternative for acne management. Further research and development efforts are warranted to validate its clinical utility, address formulation challenges, and unlock itsfull therapeutic potential.

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