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Formulation And Evaluation of Multipurpose Turmeric Cream

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ABSTRACT

Turmeric (Curcuma longa), a widely used medicinal herb, is renowned for its potent anti-inflammatory, antimicrobial, and antioxidant properties, primarily due to its active compound Curcumin.

Objective: To formulation and evaluation of Multipurpose Turmeric cream Aloe vera gel, Neem Extraction, (Azadirachta India) Turmeric Extraction, Aloe vera, (Curcuma Longa) iso propyl alcohol, mix solvent,

Method: The cream was formulated using a base composed of liquid paraffin, beeswax, methyl paraben, borax, distilled water, rose water, isopropyl alcohol, a mixing solvent, and extracts of turmeric, aloe vera, and neem. The preparation utilized the slab technique or extemporaneous method to ensure a geometric mixing of the ingredients, resulting in a smooth texture and proper integration of all components. Employing the slob wound healing technique, we developed three distinct batches of our herbal cream, designated as F1H, F2H, and F3H. Each batch underwent evaluation for various parameters, including physical characteristics, pH levels, irritancy, washability, phase separation, and spreadability.

Results: All three formulations, namely F1H, F2H, and F3H, demonstrated an appealing appearance, exhibited a nearly neutral pH, and showed no signs of erythema, edema, or redness on the skin during the irritancy study. They were easily washable, had good spreadability, and did not experience phase separation. Furthermore, all three formulations were found to be stable at room temperature.

Conclusion: The cream demonstrated a multifunctional effect through the incorporation of Aloe Vera gel, Neem, and Turmeric, with each herbal component exhibiting distinct significant activities. The

findings indicate that all three formulations, F1H, F2H, and F3H, remain stable at room temperature and are safe for application on the skin.

Keywords: Aloe barbadensis (gel), Azadirachta indicia (Neem), Curcuma longa (Turmeric), Multipurpose cream, Herbal cosmetic

INTRODUCTION What is Cream?

Creams are semi-solid mixtures made of one or more therapeutic ingredients dissolved or Dispersed in A cream can be classified as either oil-in-water or water-in-oil emulsion, and it is designed to be waterwashable. It is applied to the outer layer of the skin, providing the advantage of prolonged adherence to the application site. The main function of a skin cream is to safeguard the skin against various environmental influences and weather conditions, while also offering a soothing effect. It is utilized on Surface of superficial area of skin, and its benefit is that it can stay on the application site For a longer period of time. The main function of a skin cream is to safeguard the skin against diverse environmental influences and weather conditions, while also providing a soothing effect. Cold, Cleansing, vanishing, foundation, massage, sleep, hand, and body creams are Among the common varieties of Creams. (1) Medicinal and pharmaceutical chemistry is a Branch of chemistry pharmacological Concerned with the design synthesis of development of pharmaceutical medication Turmeric (Curcuma longa) has been widely used in traditional medicine and skincare due To its active compound, Curcumin, which possesses anti-inflammatory, antioxidant, Antimicrobial, and wound-healing properties. A multipurpose turmeric cream can serve as a Moisturizer, antibacterial agent, skin brightener, and antiaging cream.

This research focuses on the stepwise formulation and evaluation of turmeric-based cream, ensuring its Effectiveness, stability, and skin compatibility. Herbal cosmetics are categorized according to their dosage forms, such as creams, powders, soaps, and solutions, as well as by the specific body part or organ they are intended for, including products for the skin, hair, nails, and teeth.etc(2)

1) Herbal cream: The herbal cream is essentially an emulsion made of water and oil, incorporating a blend of natural components like turmeric, aloe vera, and neem, selected for their unique characteristics. (3)

2)Anatomy of Skin: The skin, recognized as the largest organ in the human body, functions as a protective barrier that distinguishes the internal body from the external environment. It plays a crucial role in regulating body temperature, enabling sensory perception, and significantly enhancing immune defense. (4)

MATERIAL AND METHOD

- **Equipment:** Beaker, measuring cylinder, glass rod, mortar and pestle, funnel, stand, conical flasks, glass rod, pear of tune, china dish, mixer.
- **Instrumentation:** Hot plate, weighing balance. Chemicals: Methyl paraben, beeswax, borax, distilled water, mixing solvent, isopropyl alcohol, rose water, liquid paraffin. (5)
- **Preparation of herbal Extraction**

1)Turmeric Extraction Combine 10 grams of turmeric powder with 50 milliliters of isopropyl alcohol in a flask. Shake thoroughly and heat in a water bath at a temperature ranging from 80 to 100 C° Celsius for a duration of 5 to 10 minutes. Subsequently, filter the mixture to acquire the turmeric extract. (6)

Figure No : 1Turmeric Extraction (7)

2)Neem Extraction

Collect fresh Neem leaves and wash them with distilled water. Remove moisture from the leaves by utilizing a hot air oven. Then pulverize them into a fine powder. Measure 5g of Neem powder and combine 20ml of a suitable solvent. Heat the mixture in a water bath at 100°C for a duration of 5 to 10 minutes and subsequently filter it to yield a clear solution. (8)

Figure No: 2 Neem Extraction (9)

3)Aloe Vera gel

To obtain an Aloe Vera extract, first harvest an Aloe Vera leaf and clean it thoroughly. Next, dry the leaf in a heated oven and then slice it lengthwise. Extract the semi-solid gel from the Aloe Vera, ensuring that all fibers and impurities are removed. (10)

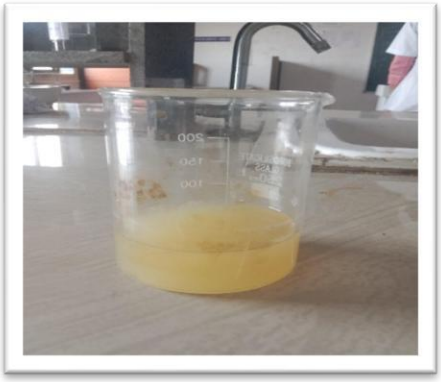

Figure No: 3Aloe vera Gel (11)

- **Formulation of cream**

Table No: 1 Formulation Table

Sr.No	Ingredients	F1	F2	F3	Roll
1	Turmeric Extraction	2ml	2.80ml	2,80ml	Antimicrobial
2	Neem Extraction	3ml	1.60ml	1.5ml	Dryness of Skin
3	Aloe Vera gel	2.5 ml	1.5gm	1.60ml	Moisturizer
4	Liquid paraffin	10ml	10ml	8ml	Lubricants
5	Beeswax	5gm	1,80gm	5gm	Alkylating Agent
6	Borax	0.5 gm	0.5gm	0.5gm	Emulsifier
7	Methyl paraben	1gm	1gm	0.5gm	Preservatives
8	Rose water	Q, S	Q. S	Q. S	Vehicle
9	Distilled water	Q. S	Q. S	Q. S	Fragrance

- **Procedure**

✦ **Oily phase:** In the oily phase, heat beeswax and liquid paraffin in a petri dish to a temperature of 75°C using a water bath**.** For the aqueous phase, dissolve borax in a beaker, then add methyl paraben and distilled water. Mix all ingredients while continuously stirring and heat to 75°C,Gradually transfer.

✦ **Aqueous phase:** Gradually add the oily phase while continuously stirring, then mix in Aloe Vera gel and Neem extract. and Turmeric extract using a mortar and pestle with continuous stirring and finally add rose water. (12)

F1C

F2C

F3C

EVALUATION TEST

1. Physical Parameters

Table No: 2 Physical Parameters

Sr. No	Parameters	F1C	F2C	F3C
1	Color	Faint Yellow	Yellow	Yellow
2	Order	Pleasant	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth
4	State	Semi solid	Semi solid	Semi solid

2. Irritancy Test

Locate a 1cm section on the dorsal side of the left hand. Then, apply the cream to this section and permit it to act. After a period of up to 24 hours, evaluate any indications of irritation, erythema, or edema, and record any observations.(13)

Figure No 4 Irritancy Test(14)

3. Washability test

The Washability Test was performed by applying the complete quantity of the cream to the hand and then rinsing it off with tap water. All formulations were easily available. (15)

Figure No: 5 Washability Test (16)

4. Spreadability Test

The evaluation of spreadability for all formulations, specifically F1C, F2C, and F3C, reveals that reduced separation time between the two slides correlates with enhanced spreadability. Consequently, this analysis indicates that F1C exhibits the highest level of spreadability. (17)

M= weight tide to upper slide

L= length moved by slide

T= time taken to slip (sec) (17)

Figure No: 6 Spreadability Test (18)

5. pH meter

The calibration of the pH meter involved dissolving 1 gram of cream in 20 milliliters of distilled water, followed by measuring the pH using a digital pH meter. (19)

Figure No:7 pH Test (20)

6. Phase separation Test

The prepared cream must be kept in a container at room temperature, shielded from direct sunlight, and observed for a period of 24 hours(21)

Figure No :8 Phase separation Test (22)

RESULTS AND DISCUSSION

All three formulations, FIH, F2H, and F3H, demonstrated positive characteristics in terms of appearance, pH, and viscosity, with no evidence of phase separation. Additionally, formulations F1C, F2C, and F3C exhibited no signs of redness, erythema, or irritation during the stability assessment and were easily

washable. Furthermore, all three formulations, FIC, F2C, and F3C, maintained stability across different temperatures. The test results confirmed that the yellow color was evenly distributed throughout the cream, thereby affirming its quality. The cream is formulated as an oil-in-water emulsion, which facilitates easy application on the skin without leaving a sticky residue and can be effortlessly rinsed off with water. The purpose of the stability test is to evaluate the longevity of the cream formulation, which can be assessed through various parameters such as physical appearance, color, odor, consistency, and texture of the product.

1.Physical Parameters

Table No:3 Physical Parameters

Sr No	Parameters	F1C	F2C	F2C
1	color	Faint Yellow	Yellow	Yellow
2	Order	Pleasants	Pleasant	Pleasant
3	Texture	Smooth	Smooth	Smooth
4	State	Semi Solid	Semi solid	Semisolid

2.Irritancy Test

Table No: 4 Irritancy Test

Sr.No	Parameters	Irritancy Test	Edema
1	F1C	Nill	Nill
2	F2C	Nill	Nill
3	F2C	Nill	Nill

3.Washability Test

Table No:5 Washability Test

Sr. No	Formulation	Washability
1	F1C	Easily Washability
2	F1C	Easily Washability
3	F3C	Easily Washability

4.Spredability Test

Table No: 6 Spreadability Test

Sr No	Formulation	Time (sec)	Spreadablity
1	F1C	5	3
2	F2C	7	2.11
3	F3C	6	2.5

5.PH Test

Table No: 7 pH Test

Sr. No	Formulation	pH test
1	F1C	5.2
2	F2C	5.8
3	F3C	5.4

6.Phase separation Test

Table No: 8 Phase Separation Test

Sr. No	Formulation	Phase separation
1	F1C	No phase separation
2	F2C	No phase Separation
3	F3C	No phase separation

CONCENTRATION

A Successfully developed herbal skin formulation for wound healing has demonstrated compliance with essential pharmaceutical standards. The cream, which incorporates Turmeric, Neem, and Aloe Vera, exhibits multiple beneficial effects, with each herbal component contributing distinct significant activities. The findings indicate that formulations F1C, F2C, and F3C remain stable at room temperature and are safe for topical application. Consequently, it can be concluded that F1C is superior to both F2C and F3C In terms of efficacy. This study emphasizes the therapeutic potential of herbal extracts for medicinal applications. There has been a significant increase in the demand for these creams within the personal care industry. The inclusion of bioactive ingredients enhances the biological functions of the skin and supplies essential nutrients for maintaining skin health. The formulated cream demonstrated excellent spreadability, with no signs of phase separation and maintained consistency throughout the study period. This herbal cream possesses optimal properties and nutritional benefits while utilizing minimal chemicals, thereby safeguarding the skin from various issues. Given that the cream is produced using straightforward ingredients and methods, it is also cost-effective. The formulation of herbal cosmetics is deemed safe for use and serves as a protective barrier for the skin. Results from various tests indicate that this formulation can be applied topically to shield the skin from damage more effectively than synthetic alternatives. Future research will be conducted to scientifically investigate the synergistic effects of formulation.

REFRENCES

1) Bhavana Patil, Neha Yadav. Formulation & Evaluation of Multipurpose Herbal Cream. Journal of Emerging Technologies and Innovative Research (JETIR) 2022; 9(3): 310-320.

2) Gurjar R, Sharma H. A review on herbal cream and some plants used for herbal cream Formulation.

Int J Creat Res Thoughts. 2023;11(5):392-399.

3) Sonalkar MY, Native SA. Formulation and evaluation of polyherbal cosmetic cream. World J Pharm Sci. 2016; 5:772-9.

4) Chen X, Zhu H, Liu X, Li L, Dong M. Design and synthesis of novel GluN2A NMDAR Positive allosteric modulator via scaffolding hopping strategy as anti-stroke therapeutic Agent. Bioorg Med Chem. 2013; 83:117236

5) H. Sato H, Candelas A, Vero Y. Synthesis and characterization of novel (S)-Saminopropyl-2Fluorouridine modified oligonucleotides as therapeutic sRNAs. Bioorg Med Chem.

[Year];[Volume]:[Page range].

6) Niguyen HNB, Patuwo MY. Quantitative structure activity relationship (QSAS) Modelling of the activity of anti-colorectal cancer agent featuring quantum chemical Predictor and Interaction terms. Results Chem. 2013;100888.

7) Priyanka Sharma, Amit C Khalkhal, Harsha Kharkwal, MZ Abdin, Ajit Varma. A review On the pharmacological properties Of Aloe Vera. Int J Pharm Sci Rev Res 2014; 29:31-7

8) Sharma Pankaj, Tamar Lokeshwar, Bachwani Mukesh, Bansal Vishnu. Review on neem (Azadirachta indica): Thousand Problems One solution. Int Res J Pharm 2011; 2:97-102.

9) Singh M. Sharma S. Khokara L.S Kumar" preparation and evaluation of herbal Cosmetics cream "pharmacology online 2011; 5(2) 1258 – 64 .

10) Mahajan N . Rawal S. Varma M Poddar M Alok S.A pharmacological overview on Species with special emphasis on ociume and sanctumsBiointed prove Nutra 2013;3 185-92.

11) Renisheya Joy Jeba Malar T, Johnson M, Nancy Beaulah S, Laju RS, Anupriya G, Renova Joy Jeba Ethal T. Anti-bacterial and anti-fungal activity of aloe Vera gel extract. Int J Biomed Adv Res 2012; 3:184-7.

12) Kalpesh Chhota Lal Ashara. Importance of trituration techniques on preparation and Evaluation of cold Cream. Inventi Rapid Pharm Tech 2013;1-2:2012

13) E Sawant Shubhangi, D. Tajane MonaliFormulation and evaluation of herbal Ointment Containing Neem and Turmeric Extract Journal of Scientific and InnovativeResearch 2016, 5(4): 149-151.

14) E. Sawant Shubhangi, D. Tagine Monali Formulation and evaluation of herbal Ointment Containing Neem and Turmeric Extract Journal of Scientific and Innovative Research 2016, 5(4): 149-151

15) Kambaj VP. Herbal medicine. Curr Sci. 2000;78(1):[page numbers]. Singh M, Sharma S, Khokra IS, Kumar SR. Preparation and evaluation of herbal cosmetics Cream. Pharmacology Online. 2011;2(2):1258-65.

16) Jawaid Talha J, Gupta R, Siddiqui ZA. A review on herbal plants showing Antidepressant activity. Int J Pharm Sci Res. 2011; 2:3051-60.

17) Sakthivel M, Halith SM, Karthikeyan R, Kaviya M, Kinahika M, Kowsalya S, et al. Formulation and evaluation of herbal ointment containing neem and turmeric extract. Int J Pharm Sci Rev Res. 2023;78: [add page numbers if available].

18) Kapoor S, Safar S. Formulation and evaluation of moisturizer containing herbal extracts For the management of dry skin. Pharmacology J. 2010:409-417.

19) Sawant S, Tajane M. Formulation and evaluation of herbal ointment containing Neem And Turmeric extract. J Sci Innov Res. 2016;5(4):149-151.

20) Patil Bhavana, Neha Yadav Formulation And Evaluation of Mutlipurpose HerbalCream, 2022, 9 (3): 2349-5162.

21) Gupta N, Dubey A, Prasad P, Roy A. Formulation and evaluation of herbal fairness cream comparing hydroalcoholic extract of Pleurotus ostreatus, Glycyrrhiza glabra and Camellia sinensis. Pharma Bio

Sci. 2015;40–45

22) Jain S, Bhandari A. Development and evaluation of herbal cosmetics using turmeric. Journal Pharmacognosy Phytochemical. 2019;8(5):1302-6.