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RESEARCH ARTICLE

FORMULATION AND EVALUATION OF HERBAL CREAM FOR PSORIASIS, LEUCODERMA OR VITILIGO DISEASE

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ABSTRACT

Now a days the demand of herbal Product is increasing day by day. Herbal formulations are receiving more concentration in public because of their high-quality properties and less side effects.The aim of present study was to set the formula for herbal cream by using different herbs such as Bakuchi (Psoralea corylifolia), Neem (Azadirachta indica), Tulsi (Ocimum sanctum). The main purpose of our work was to formulate a herbal cream which can produce multipurpose effect, like moisturizer, reduce acne and irritation, reduce skin conditions like psoriasis, eczema, wrinkles, dry skin, rashes etc.

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INTRODUCTION

Ayurveda is the science of life. Ayurveda – Ancient Science of Indian Health, since life is synonymous with health, Ayurveda is deemed to be the science of human health. Ayurveda's approach toward shealing is holistic. It doesn't deal with individual organs in isolation, but treats the body as a whole. More important, it doesn't give temporary relief, but fight the disease and help get rid from them. The Ayurvedic Cream vanishes into your skin, rejuvenates and revitalizes your skin from within, leaving it soft, supple and young looking. Its amazing properties range from flavoring curries,to sterilizing wounds, to grooming women.

Now a day's herbal extracts are used in the cosmetic preparations for augmenting beauty and attractiveness. Herbal cosmetics are classified on the basis of dosage form like-cream, powder, soaps, solutions, etc. and according to part or organ of the body to be applied for like; cosmetics for skin, hair, nail, teeth and mouth etc. Bakuchi is used for external application on skin rashes, vitiligo, pateches, eczema and to arrest hair fall. Neem is used to promote wound healing, relieves skin dryness, itching and redness and it isalso used to reduce pigmentation, reduce acne and pimples. Tulsi is used as antibacterial and can help to prevent the growth of harmful bacteria on the skin, which can help to reduce the risk of breakouts and other skin problems.

CREAM

Cream are defines as "a semisolid dosage form containing one or more drug substances dissolved or dispersed in a suitable base" Creams are semi-solid emulsions of oil and water. They are of a softer consistency & lighter body than true ointment. Cream are homogeneous, semi-solid or viscous preparations that possess a relatively fluid consistency and are intended for external application to the skin or certain mucous membranes for protective, therapeutic or prophylactic purposes especially where an occlusive dispersions of effect is not necessary. They are semisolids usually consisting of solutions or one or more medicaments in suitable bases. They are formulated using hydrophilic or hydrophobic bases to provide preparations that are essentially miscible with the skin secretion. semisolid emulsions of either O/W or W/O type.

- Oil in Water O/W
- Water in Oil W/O
- Cosmetics cream
- Medicated cream

HERBAL CREAM

Herbal creams are the latest, a safe and effective trend in the field of beauty and fashion. These Herbal Creams are gaining popularity as now a days most people prefer natural product so

very chemicals for their personal care to enhance their beauty as these products supply the body with nutrients and enhance health and provide satisfaction as these are free from synthetic chemicals, these products supply the body with nutrients and enhance health and provide satisfaction as these are free from synthetic chemicals.

PREPARATION OF HERBAL CREAM

Vast types of plants and plant products are used in manufacturing of different types of herbal creams which are intended for different aims of applications. However, all the methods follow some common chain process that can be presented as follows. The process starts with the collection of raw plant materials which after procurement are cleaned and quality assessment of the same are performed. The reafter depending on need these are dried or processed as such. In the next step the raw plant materials, wherever applicable, are extracted utilizing standard methods and specific solvents or juice/gels are collected using standard methods. The oil phase preparation is the next step where liquid paraffin and beeswax are heated to 75 °C consistently which yields the oil phase to be used in creams. Borax and methyl paraben are mixed with distilled water are heated to 75 °C to create a clear solution. This is known as preparation of aqueous phase. Once the oil phase is heated, gradually water phase is added to it and mixed which is then followed by addition of the herb extract or juices or jelly to yield smooth creams. Finally appropriate aroma is added and the product is ready to be packed.

COMMON EXCIPIENTS AND THEIR ROLES

Many of different types of excipients are used in the formulations of creams or herbal creams. Few of very common and extensively utilized excipients are bees wax and liquid paraffin which are used as emulsifier, thickener and lubricating agent. Borax is used in the cosmetic industry to prevent or slow bacterial growth in moisturising products like creams, shampoos, gels, lotions, bath bombs scrubs and bath salts. Manufacturers of cosmetics use borax as a buffering agent or an emulsifier to keep product ingredients from separating. Sodium Benzoate is a commonly used preservative in cosmetics and personal care products. Rose oil as a fragrance. Rose oil is the best face oil for dry skin. It is a natural humectant, meaning it helps to keep the skin hydrated. It does this by drawing moisture from the air and sealing it into the skin. Water is primarily used as a solvent in cosmetics and personal care products in which it dissolves many of the ingredients that impart skin benefits, such as conditioning agents and cleansing agents. Water also forms emulsions in which the oil and water components of the product are combined to form creams and lotions.

COMMON HERBS UTILIZED IN HERBAL CREAMS

Many types of herbs are exploited for their different medicinal and cosmetic preparations. Some of the most common in herbal creams are summarized in the following table

Bakuchi extract

Neem extract

Tulsi extract

Table 1. Common herbs in herbal cream preparations

Common Name	Part used	Chemical Constituents	Uses
Bakuchi	Seeds of *Psoralea corylifolia*	Psoralen, , Psoralone, Psoralenol, Isopsoralen, bakuchalcone, corylifolean, corylifolin	Psoriasis, Vitiligo, Leucoderma, Dermatoses, Alopecia, Eczema
Neem	Leaves of *Azadirachta indica*	Nimbidin, Nimbidal, Nimbin, Limonoids	Anti-oxidant, Antiseptic, Anti-ageing, Treats acne
Tulsi	Leaves of *Ocimum sanctum*	Eugenol, Oleanolic Acid, Linalool, Ursolic Acid,	Antimicrobial, Antioxidant, Antiviral, Anti-inflammatory

DISEASE

LEUCODERMA, ORVITILIGO: A disease that causes the loss of skin colour in blotches. Vitiligo occurs when pigment-producing cells die or stop functioning. Loss of skin colour can affect any part of the body, including the mouth, hair and eyes. It may be more noticeable in people with darker skin. Treatment may improve the appearance of the skin but doesn't cure the disease.

PSORIASIS - A condition in which skin cells build up and form scales and itchy, dry patches. Psoriasis is thought to be an immune system problem. Triggers include infections, stress and cold. The most common symptom is thick skin patches typically seen on elbows, knees, and lower back associated with white scaling on the scalp. Treatment aims to remove scales and stop skin cells from growing so quickly. Topical ointments, light therapy and medication can offer relief.

MATERIAL AND METHODS

MATERIAL

- Bakuchi seeds
- Neem leaves
- Tulsi leaves
- Beeswax
- Liquid paraffin
- Borax
- Sodium Benzoate
- Rose oil
- Distilled water

EQUIPMENT

- Soxhlet apparatus
- pH meter
- Brookfield viscometer
- Weighing machine
- Beaker
- Test tubes

METHODS

Preparation of w/o emulsion creams: The oil soluble components and the emulsifier are taken in one beaker and melted in a water bath at 75°C. And in other beaker water, preservatives and water-soluble components are taken and melted at 75°C.After heating, the oil phase was taken in a mortar and pestle and slowly the water phase was added and triturated till clicking sound was heard. Finally, when the temperature cools down, perfuming agents and/or preservatives are added. In this preparation, water content will be more than the oil.

Extraction procedure of psoralen from bakuchi seeds: Bakuchi seeds are typically coarsely powdered to increase the surface area for solvent interaction. Common solvents for bakuchi extraction include ethanol, petroleum ether, and sometimes chloroform for preservation in cold maceration. The powdered bakuchi is placed in a container and covered with the chosen solvent. The mixture is left to soak for a specific duration. After maceration, the liquid extract is separated from the solid residue by filtration (using filter paper).The solvent is then removed from the extract, often by evaporation on a water bath or in an oven, to obtain the crude extract.

Procedure for neem extraction: This could be dried neem leaves or seeds, which may be ground into a powder. Common solvents for maceration include ethanol, methanol, hexane, and acetone. Place the ground neem material in a clean container (like a glass jar) and add enough solvent to completely submerge the material. Stir the mixture gently to ensure even distribution. Seal the container to prevent evaporation of the solvent. Allow the mixture to soak at room temperature for a specific period, typically 24-72 hours, or even longer. After the maceration period, filter the mixture through filter paper or a muslin cloth to separate the liquid extract from the solid residue. The filtered liquid is the neem extract.

Procedure for extraction of tulsi: Fresh Tulsi leaves are collected, cleaned, and dried, he dried leaves are then ground into a fine powder using a grinder, A specific amount of the powdered Tulsi is mixed with a chosen solvent (like ethanol or water) in a flask. The mixture is sealed and left to soak for a period, typically 24 to 72 hours, or even longer, at room temperature. The flask may be shaken or stirred periodically to ensure thorough extraction. After maceration, the mixture is filtered to separate the liquid extract (micelle) from the solid plant material (marc).The solvent is then evaporated from the liquid extract, typically using a water bath or oven, to obtain the concentrated extract.

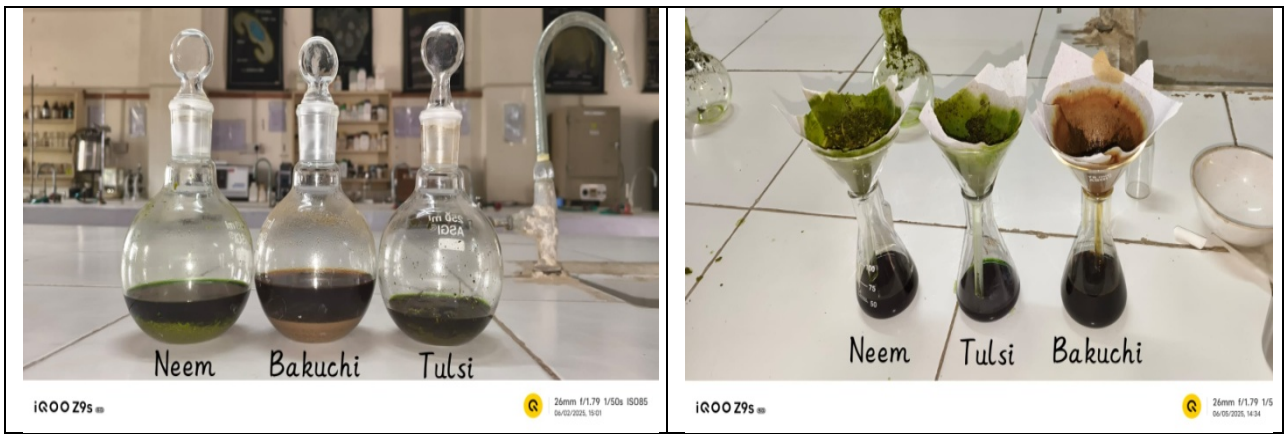
METHOD OF FORMULATION OF CREAM

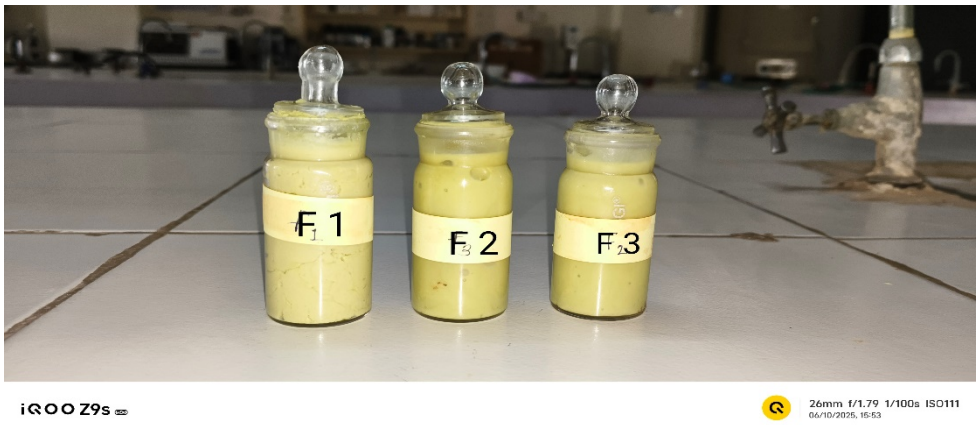
This cream is water in oil type of emulsion.

- Heat liquid paraffin and beeswax in beaker at 75°C while maintaing temperature
- Then dissolve borax, sodium benzoate and psoralen in another beaker and heat at 75°C to dissolve.
- Slowly add aqueous phase to heated oil phase by continuous stirring.
- Add neem extract, tulsi extract and rose oil individually drop by drop with vigorous stirring to obtained uniform smooth texture of cream.

INGREDIENTS

SR.NO	INGREDIENTS	QUANTITY F 1	QUANTIY F 2	QUANTITY F 3	CATEGORY/ ROLES
1.	Psoralen	3ml	0.02 g	1.42 ml	Melanocyte proliferation
2.	Tulsi extract (Eugenol)	2.5ml	1.42 ml	1 ml	Anti- bacterial
3.	Neem Extract (Nimbidine)	1.5 ml	0.28 ml	0.28 ml	Promote wound healing, relieves skin dryness, itching and redness
4.	Beeswax	6.78 g	4.97 g	4.97 g	Emulsifying agent
5.	Liquid paraffin	16 ml	21.78 ml	21.78 ml	Lubricating agent
6.	Borax	0.2 g	0.056 g	0.056 g	Alkaline agent
7.	Sodium Benzoate	q. s	q. s	0.02 g	Preservative
8.	Rose oil	q. s	q. s	q. s	Fragrance
9.	Distilled Water	0.02 g	0.02 g	q. s	Vehicle





EVALUATION OF CREAM

SR.NO	PARAMETERS	OBSERVATION F 1	OBSERVATION F 2	OBSERVATION F 3
1.	Colour	Light Green colour	Greenish colour	Greenish colour,
2.	Odour	Pleasant	Pleasant	Pleasant
3.	Texture	Smooth	Smooth	Smooth
4.	State	Semi-solid	Semi-solid	Semi-solid
5.	Irritancy	No skin reaction	No skin reaction	No skin reaction
6.	Washability	washable	washable	Easily washable
7.	pH	7.97	7.22	6
8.	Viscosity	39033 cps	28006 cps	26060 cps
9.	Phase separation	phase separation	No phase separation	No phase separation
10.	Greasiness	greasy	Non greasy	Non greasy

EVALUATION OF PSORALEN OBTAINED FROM BAKUCHI SEEDS: Thin-layer chromatography (TLC) is used to analyze psoralen, Typically, silica gel plates (e.g.,silica gel 60F254) are used. A mixture of solvents is used, often including n-hexane, acetone, and formic acid. The specific ratio of solvents can be optimized for better separation. Psoralen migrates through the stationary phase based on its affinity for the mobile and stationary phases, resulting in distinct spots on the TLC plate. Psoralen can be visualized under UV light or by using specific staining techniques, and its presence can be confirmed by comparing its retention factor (Rf value) to a standard.

EVALUATION OF EUGENOL IN TULSI EXTRACT

Perform evaluation process by TLC method using Toulene: Ethyl acetate as mobile phase in the ratio of 2:1.

EVALUATION OF NIMBIDINE IN NEEM EXTRACT: Take extract of neem and add conc. sulphuric acid to it and observe the

change if yellow colourat the lower layer than test confirms the presence of Nimbidine in neem.

EVALUATION OF CREAM

- **Physical Evaluation:** Cream was observed for colour, texture, odour, etc.
- **Irritancy:** Mark 1cm2 area on the left- hand dorsal surface. Cream is applied to that area and note that time. After interval up to 24 hours it is checked for irritancy , erythema and edema if any reported.
- **Wash Ability:** Apply A small amount of cream on the hand and wash with the tapwater.
- **PH:** 0.5g cream was taken and dispersed in 50 ml distilled water and PH was measured by digital PH meter.
- **Viscosity:** Measured by Brooke field viscometer at room temperature using spindle no.63 at 2.5 RPM.
- **Phase Separation:** Cream is kept inclose container away from light at 25-100°Cfor one month and observed for phase separation.
- **Spreadibility:** Spreadablity is carried out for all formulations. The less time taken for separation of both slides better the spreadablity.
- **Greasiness:** The cream is applied in the form of smear on the surface of skin and observed if smear is oily or grease like.

RESULT AND DISCUSSION

- Evaluation of psoralen obtained from bakuchi seeds -TLC was also performed and got an Rf value that is 0.54 [mobile phase -n-hexane: acetone: formic acid (2:1:0.025 v/v)]
- Evaluation of eugenol in tulsi extract-The performed TLC showed the RF value of 0.41 which confirms the presence of eugenol in tulsi extract.
- Evaluation of nimbidine in neem extract- The test performed using extract of neem added with conc. sulphuric acid showed yellow colour at lower layer which confirms the presence of nimbidin in the extract.

CONCLUSION

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. The Uses of bioactive ingredient in topical formulations influence biological functions of skins and provide nutrients necessary for the healthy skin. There are various herbs available naturally having different uses in cream preparations. Herbal creams are considered as sustaining and productive way to advance the appearance of skin. They also consist of natural nutrients like Vitamins and minerals that keep skin healthy, glowing and lustrous. Herbal creams are used to stimulate blood circulation, rejuvenates those muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. During the past few decades herbal formulations have growing demand in the world market and today play a major economic role in the cosmetics industry. More research works towards the safety,efficacy and user compliance inthese formulations may lead to more demands of such formulations which will take them through to the peak in global business.

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