



**INTERNATIONAL JOURNAL OF
PHARMACEUTICAL SCIENCES**
[ISSN: 0975-4725; CODEN(USA):IJPS00]
Journal Homepage: <https://www.ijpsjournal.com>



Research Article

Formulation And Evaluation Of Skin Infection Care Cream

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ARTICLE INFO

Received: 09 Aug 2024

Accepted: 13 Aug 2024

Published: 16 Aug 2024

Keywords:

Skin Cream, Salicylic acid,
Neem, Tulsi, Turmeric,
Coconut Oil, Oil and Water
phase

DOI:

10.5281/zenodo.13331501

ABSTRACT

Skin health is influenced by factors such as origin, lifestyle, age, and health status. The cosmetic and pharmaceutical industry offers various skin care products to maintain skin health. These products include cleansing, soothing, restoring, reinforcing, and protecting. As we age, the emphasis on skin care shifts from cosmetic objectives to therapeutic and preventive goals. The primary areas in need of care and protection change, with younger years focusing on environmental factors and older years on age-related factors. Ageing also changes skin structure and function, increasing susceptibility to various skin problems and diseases. Skin care products are widely available in daily life and play a significant role in health and nursing care. Even in places where access to modern medicine is available, there has been a substantial increase in interest in and usage of herbal remedies in recent years. Plant-derived substances and herbal medicines have been attracting a lot of attention because medicinal plants are the primary source of the bioactive molecules utilized in modern as well as traditional medicine. The current task is to create a cream that contains Salicylic acid, Sulphur and Neem powder. The basis for the cream was made, then the water and oil phases were combined to make the cream. It was assessed for its physicochemical properties, including color, odor, pH, texture, and stability, after formulation. Consequently, it might use the medical property in the media.

INTRODUCTION

Creams are the topical preparations which can be applied on the skin. Creams are defined as viscous liquid or semi-solid emulsions of either the oil-in-water or water-in-oil type dosage forms which consistency varies by oil and water. Creams can be

applied to any part of the body with ease. It is convenient to use cream by all the age group of people. Creams are emulsions of oil and water. In coming future, more advanced technologies and methods will be used for preparation, formulation and evaluation of creams. Also, the demand of

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



herbal constituents-based creams is increasing day by day. Now, a variety of skincare products are available for almost any beauty concern one can have, including body washes, gels, lotions, exfoliants, moisturizers, toners, and sun protection. There is mainly a focus on helping skin from the inside out. Creams may be considered pharmaceutical products as even cosmetic creams are based on techniques developed by pharmacy and un-medicated creams are highly used in a variety of skin conditions in ancient times, creams were simply prepared by mixing of two or more ingredients using water as the solvent.

Skin care procedures and skin care products

The information on skin care procedures is plentiful but little scientifically documented and the number of products available for cleansing, soothing, restoring, reinforcing and protecting is of an almost infinite variety. Nonetheless their functionalities may be described as

1. Removal of dirt, sebum, microorganisms, exfoliated corneocytes and other non- wanted substances from the skin
2. Reduction of unpleasant skin symptoms (e.g., pruritus, burning, odor)
3. Restoration of (sub-clinically) damaged skin (e.g., dry and inflamed skin)
4. Reinforcement of undamaged but vulnerable skin (e.g., skin surface pH balance, germ reduction)
5. Protection of damaged, undamaged and vulnerable skin from various noxious factors.

Almost every aesthetic condition may now be addressed with a wide variety of skincare products, including body washes, gels, lotions, exfoliants, moisturizers, toners, and sunblock. The focus is primarily on internal skin improvement. The FDA's existence limits the use of recognized dangerous compounds, even though many skincare products still have side effects. For a very long time, creams and other topical preparations have been considered fundamental parts of

cosmetics. Creams may be regarded as pharmaceutical items since even cosmetic creams are founded on pharmacy principles and un-medicated creams are frequently utilized in a variety of skin problems. In the past, making creams was as simple as mixing two or more components together while using water as the solvent. Newer formulation techniques for creams are adopted as a result of technological improvement. The general public and society can employ these semisolid preparations in an elegant way. Their range of capabilities is impressive. Creams are easily applied to any area of the body. All age groups find cream to be convenient to use. Although it might work just as well on non-aqueous cosmetics like ointments, liquid eye makeup, and mascaras with wax-solvent bases An emulsion is referred to be lotion if it has a low enough viscosity to be poured (flow under the effect of gravity alone). Emulsions of water and oil make up creams. In the near future, cream preparation, formulation, and evaluation will be done using increasingly sophisticated technology and methodologies. Additionally, the demand for creams made with natural ingredients is growing every day. The development of topical drug delivery systems designed to have systemic effects appears to be beneficial for a large number of drugs on account of the several advantages over conventional routes of drug administration in order to optimize both the release of the drug from the topical vehicle and skin permeation. The topical antifungal agents have varying mechanisms of action and different spectrums of activity and have few adverse reactions or drug interactions. Steroids have systemic effects such as anti-inflammatory and anti-allergic effects. Mupirocin is a naturally occurring antibiotic which inhibits bacterial protein synthesis reversibly by binding to bacterial isoleucyl transfer – RNA synthetase. Miconazole works by stopping the fungi from producing a substance called ergosterol, which is

an essential component of fungal cell membranes. The disruption in production of ergosterol disrupts the fungal cell membrane, causing holes. It is active against fungal infections of the skin such as ringworm, candidiasis, athlete's foot, scalp infections, fungal nappy rash, groin infections and fungal infections of the nails. Hydrocortisone is a corticosteroid with both glucocorticoid and to a lesser extent mineralo- corticoid activity. It tends to be preferred for the long-term systemic therapy of auto-immune and inflammatory diseases. When applied topically, it is used in the treatment of various skin disorders. Hydrocortisone and its acetate, butyrate, and valerate esters are commonly employed in the preparation of creams, ointments, and lotions. Human infections, particularly those involving skin and mucosal surface constitute serious problems. The drug resistant bacterial and fungal pathogens have further complicated the treatment of skin infections. Topical route is most suitable route for skin infections. Numerous topical treatments are currently used for the treatment of bacterial, fungal skin infections and skin inflammations along with presence of corticosteroids. The main aim of the present study was to develop an effective and novel cream formulation consisting of combination of Miconazole nitrate, Mupirocin. Mupirocin and fusidic acid both are indicated as equally effective. Fusidic acid acts as a bacteriostatic whereas mupirocin has got both bacteriostatic and bactericidal action.

Advantages

- Less chance of adverse effects.
- Extensive accessibility.
- Greater chemical stability compared to liquid dose formulations.
- Extend the period of time when the medication is in contact with the affected area.
- Much less oily than ointment.

Disadvantages

- A less viscous preparation compared to other semi- solid ones.
- Hepatic metabolism, with poor stability in increasing acidic PH.
- Less stable than dose forms in a solid state.

COSMETICES

The word 'Cosmetic' derived from a Greek word – 'kosmestikos' that means to adorn. From that time any materials used to beautification or promoting appearance is known as cosmetic. The word "cosmetics" actually stems from its use in Ancient Rome. They were typically produced by female slaves known as "cosmetae" which is where the word "cosmetics" stemmed from. Cosmetics are used to enhance appearance. Makeup has been around for many centuries. The first known people who used cosmetics to enhance their beauty were the Egyptians. Makeup those days was just simple eye coloring or some material for the body. Now-a-days makeup plays an important role for both men and women. The importance of cosmetics has increased as many people want to stay young and attractive. Cosmetics are readily available today in the form of creams, lipstick, perfumes, eye shadows, nail polishes, hair sprays etc. Other cosmetics like face powder give glow to the skin after applying the base cream. Then we have lipsticks, which are applied by many women of all ages. They are made from wax and cocoa butter in the desired amount. Cosmetics like creams, gels, and colognes are used on a daily basis by both women and men. Creams act as a cleanser for the face in many circumstances. Dry creams are used in the manufacture of soap and gelatin which is used as a base for the skin. Hair care has become one of the fastest developing markets in the beauty industry. Many young men turn to oils and gels to maintain and style their hair. Products like hair gels, oils, and lotions have been introduced in the market to help protect hair fall and dandruff. Some professions, like the show business industry, focus



on the importance of the outer appearance. Many personalities and artists have utilized makeup to beat the harsh lights and the glare of camera flashes. They very well know the importance of their looks and maintain them by using a variety of cosmetics.

TYPES OF SKIN CREAMS

They are divided into two types-

1. Oil-in-Water (O/W) creams which are composed of small droplets of oil dispersed in a continuous phase, and an emulsion in which the oil is dispersed as droplets throughout the aqueous phase is termed an oil-in-water (O/W) emulsion.
2. Water-in-Oil (W/O) creams which are composed of small droplets of water dispersed in a continuous oily phase. When water is the dispersed phase and an oil the dispersion medium, the emulsion is of the water-in-oil (W/O) type.

CLASSIFICATION OF CREAMS

All the skin creams can be classified on different basis:

1. According to function, e. g. cleansing, foundation, massage, etc.
2. According to characteristics properties, e. g. cold creams, vanishing creams, etc.
3. According to the nature or type of emulsion

Based on function

1. Make-up cream (o/w emulsion).
 - Vanishing creams.
 - Foundation creams

2. Cleansing cream, cleansing milk, Cleansing lotion (w/o emulsion)
3. Winter cream (w/o emulsion) a) Cold cream or moisturizing creams.
4. All-purpose cream and general creams
5. Night cream and massage creams.

SKIN

The skin is referred to as the largest part of the body organs and it contains 15% of the total adult weights. Skin has a surface area of about 2-meter square. Normally the skin is very smooth. However, due to aging and exposure to heat and cold, sunrays, pressure, and abrasion, dust and microbial infection, etc. the smoothness may be lost, and skin becomes rougher and thicker. Skin is one of the most readily accessible organs of the human body. There are two kinds of human skin; one that is hair-less such as soles of foot and palms of hand, and the other kind which bears hair and sebaceous glands such as arms and face. It includes gland, hair, nails and they perform many vital functions, protection against physical, chemical, biological assailants, prevention of excess loss of water and thermoregulation. The skin is consisting of three layers that are epidermis, dermis and subcutaneous tissue. The epidermis consists of constellation of cells known as keratinocytes. Its function is to synthesize keratin which has protective role. The middle layer dermis is made up of structural proteins called collagen and the dermis lying on the subcutaneous tissue or panniculus. It contains small lobes of fat cells.

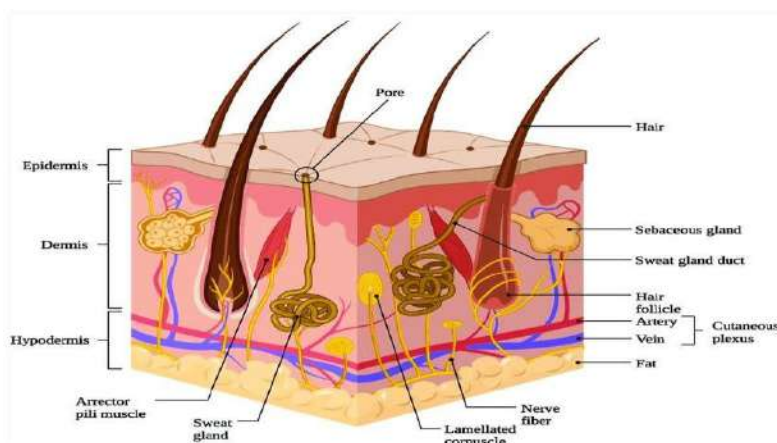


Fig.1. Human Skin Layer

ANATOMY OF SKIN

Key characteristics of the skin include:

- It is the largest organ of the body.
- It constitutes approximately 16% of the body weight.
- The surface area of the skin ranges from 1.5 to 2 square meters.
- In terms of thickness, it varies from 0.5 to 3 millimeters.

The skin is comprised of three layers:

1. Epidermis (50-100 micrometers thick)
2. Dermis (1-2 millimeters thick)
3. Hypodermis (1-2 millimeters thick)

1. Epidermis:

The epidermis is the outermost layer of the skin, composed of stratified keratinized squamous epithelium. It is a thin, superficial portion of epithelial tissues. Within the epidermis, there are four main types of cells:

a. Keratinocytes:

These cells produce strength and contribute to the formation of a protective barrier.

b. Melanocytes:

They are responsible for skin coloration.

c. Langerhans cells:

These cells are part of the immune system.

d. Merkel cells:

They detect light touch and pressure.

2. Dermis:

The dermis is the second layer of the skin, located deeper beneath the epidermis. It is composed of connective tissue that contains collagen and elastin fibers. Within the dermal tissue, you can find blood vessels, nerve endings, sweat glands, and hair follicles.

3. Hypodermis:

The hypodermis is a subcutaneous layer situated beneath the dermis. Although it is not technically part of the skin, it lies beneath it. This layer is primarily composed of adipose (fat) tissue and areolar tissue. It serves as a storage depot for fat and houses large blood vessels that supply the skin with nutrients.

Function of the Skin

- a. The skin acts as a protective barrier, shielding the body from mechanical, thermal, and physical damage.
- b. It helps in preventing the loss of moisture from the body.
- c. The skin plays a role in reducing the harmful effects of UV radiation from the sun.
- d. It is involved in the production of vitamin D when exposed to sunlight.
- e. The skin secretes sweat and sebum, which contribute to keeping the skin soft and moisturized.
- f. Additionally, the skin stores fat, water, chlorides, and sugar to varying extents.[10]

2. Fungal Infection

An invasive fungus can result in a sickness that affects only the skin, spreads to the bones and organs, or affects the entire body. A fungus-induced inflammatory disease, mycosis. The development and spread of an infectious disease is known as zymosis in medicine (especially one caused by a fungus) any of various skin or mucous membrane diseases brought on by the Blastomycosis. Infections with fungi are widespread in the natural world. Fungal infections in humans happen when an invasive fungal growth overwhelms a body part's immune system and takes over. The soil, water, plants, and air are all habitats for fungi. Moreover, several fungi naturally inhabit the human body.

Type of fungal infection:

- **Superficial:**

Skin and mucous membranes. Examples of dermatophytes that damage the keratin layer of skin, hair, and nails include tinea versicolor. Such as ring worm infestation and tinea Pedis.

- **Ringworm:**

Ringworm is caused by a collection of fungus that feed on skin, hair, and nails cells. Candidiasis: Nail infections, vulvo-vaginitis, oral thrush, and yeast-like symptoms.

- **Deep infections:**

Impact the heart, lungs, and brain and can cause pneumonia, endocarditis, and meningitis. Subcutaneous: You could acquire a fungal infection beyond the skin's surface if fungus penetrates into a cut or wound, frequently via damage when interacting with plants.

Overview of Fungal Skin Infection

The majority of superficial and subcutaneous fungal infections are quickly and easily treatable. Between the toes, in the vaginal region, and under the breasts are examples of wet body regions where skin surfaces converge and are frequent habitats for fungi. The main causes of ordinary fungal skin infections are yeasts (like Candidiasis or *Malassezia furfur*) or dermatophytes (for

instance, as *Epidermophyton*, *Microsporum*, and *Trichophyton*). Several of these fungi are restricted to living in the stratum corneum, the epidermis' outermost layer. You are more susceptible to fungus infections if your defence mechanism fails to work effectively. Obese people are more liable to pick up these infections due to their expansive skinfolds, particularly when the skin inside the skinfold produces irritation and harm (intertrigo). Patients with diabetes tend to be more prone to fungal infections. Strangely, fungal infections on one region of the body might result in rashes on unaffected parts of other parts of the body. For instance, an itchy, bumpy rash on the fingers could result from a fungal infection on the foot. Allergies to the fungus are the cause of these eruptions, often known as dermatophytids or identification or id reactions. Not touching the affected region does not cause them.



Fig.2: Fungal Infection

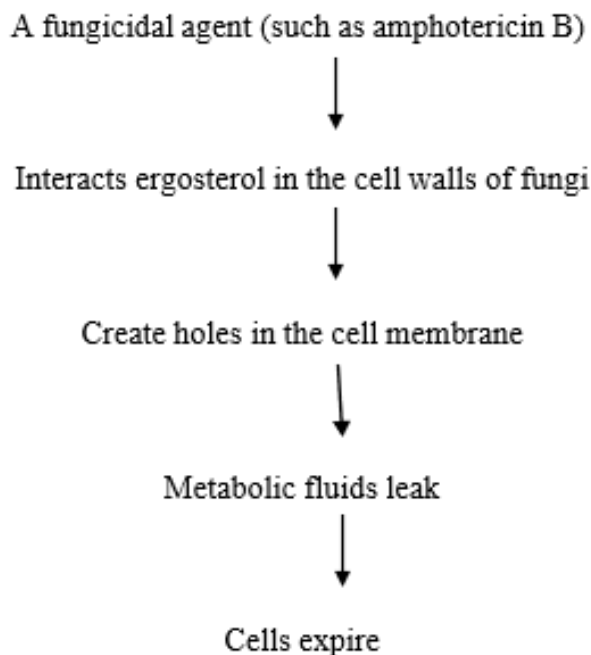
Symptoms

- Skin abnormalities comprise a deep red along with peeling or splitting skin.
- Itching
- Scaly skin
- Irritation and redness
- Swelling
- Blisters

Causes of fungal skin infection

- Imbalance of bacteria is due to following reasons
- Due to use of antibiotics
- Hormone imbalance
- Poor eating habit

Pathophysiology



Diagnosis

Doctors can identify a fungal infection if they detect a red, itchy, or scaly rash in one of the often-affected parts. To confirm the diagnosis of a fungal skin infection, a tiny portion of skin can be scraped off and analyzed under a magnifying glass or placed in a culture medium where a particular fungus can develop and be diagnosed.

Treatment

- Anti-fungal medications.
- Preventative measures for moisture.
- Antifungal drugs, often referred to as topical remedies, are frequently employed to treat fungus infections by applying them directly to the affected area. Topical medications can come in the form of creams, gels, lotions, shampoos, and solutions, among others. Oral antifungal medications are additionally offered. Users may also utilise methods like applying powder or donning open-toed shoes

to keep the affected areas dry in along with medicine.

- Doctors sometimes prescribe corticosteroids to treat certain infections with the goal to reduce swelling and irritation.

Psoriasis:

- Psoriasis is an inflammatory disease in which an overactive immune system produces an abnormally rapid increase in cell build up on the skin surface.
- The word psoriasis comes from a Greek word “Psora” which means being itchy and “iasis” means a condition.¹ The disease has a worldwide prevalence of two percent, with a higher prevalence of about 4.6% in developed countries.
- It is characterized by having sharply demarcated scaly, red, coin-sized skin lesions most often on the elbows, knees, scalp, hands and feet. Symptoms include itching, irritation, stinging and pain. Rarely, the entire skin

surface of the body may be involved. Signs to diagnose psoriasis are koebner phenomenon and Auspitz's sign.

- Etiology of this chronic condition is not clear. Stress is the most common etiological factor and patients with chronic disorders like Crohn's disease are more likely to suffer from psoriasis. Drugs that appear to have a strong causal relationship to psoriasis are beta-blockers, lithium, synthetic anti-malarial, non-steroidal anti-inflammatory drugs
- (NSAIDs), and tetracyclines. Patients with severe form of this disease have an increased risk of cardiac co-morbidities.

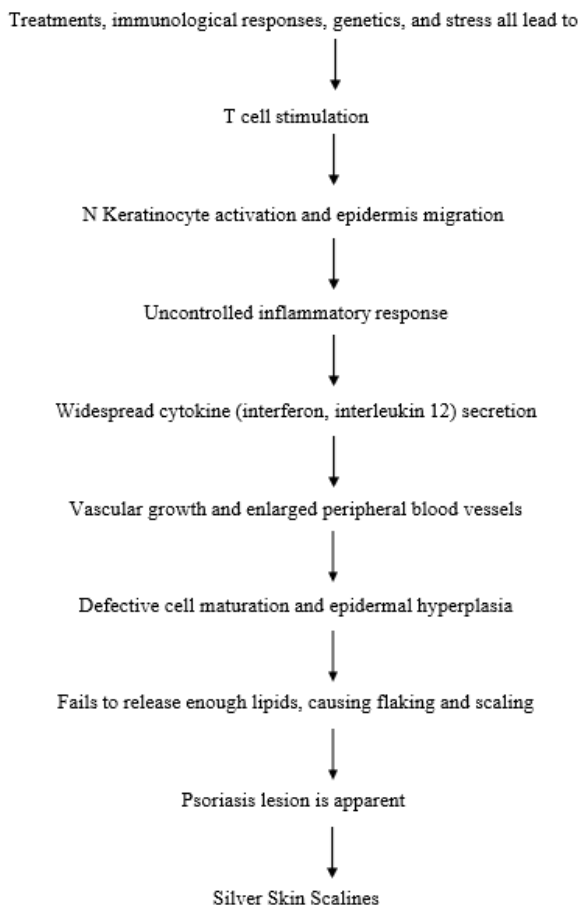


Fig.3: Psoriasis Infection

Etiology

- Family History
- Smoking
- Alcohol
- Obesity
- Medication like Beta Blockers Lithium Chloroquine
- Infection: Post Streptococcal infection and HIV

Pathophysiology



Types of Psoriasis

1. Plaque Psoriasis

The most typical kind is this. This sort affects about eight out of ten people with psoriasis. It may be referred to by your doctor as "psoriasis vulgaris."

2. Guttate Psoriasis

This kind frequently begins in kids or young adults. It causes roughly 8% of instances of psoriasis. Even without treatment, this type of psoriasis may clear up in a few weeks. However, other conditions are more difficult to treat.

3. Inverse Psoriasis

This type is usually found in these locations:

- Armpit
- Groin

- Below the breasts
- Skin folds around the urinary tract and buttock

4. Pustular Psoriasis

This kind may appear on just one part of your body, like the hands or feet. Pustular psoriasis that occasionally affects the majority of your body is known as "generalized" psoriasis. Get medical help right soon because this might be a very serious situation.

5. Erythrodermic Psoriasis

The least frequent but most serious form is this one. The majority of your body is affected and the skin becomes all over scorching and looks burned.

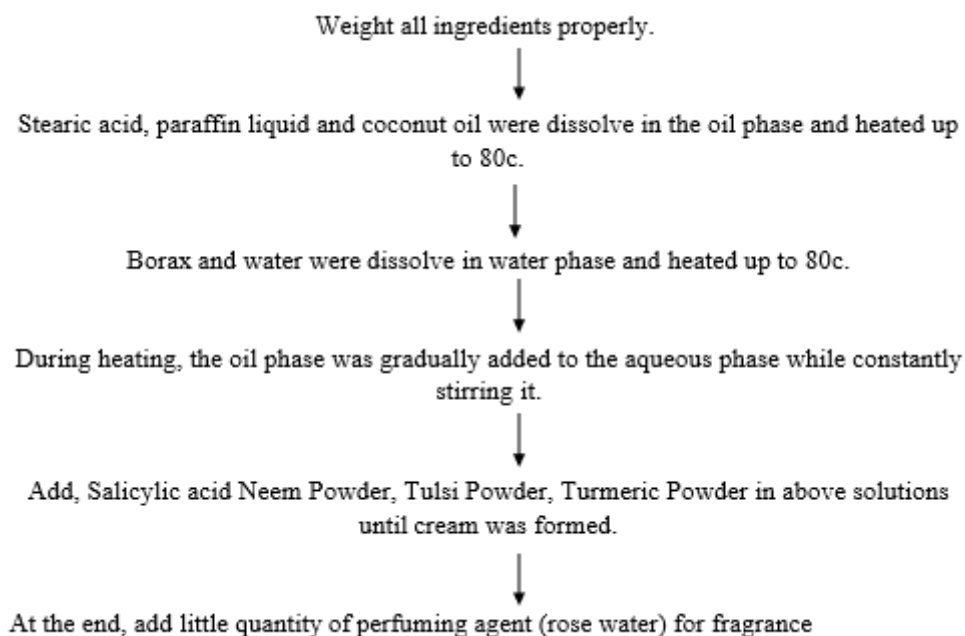
MATERIAL METHOD

Formulation table of Skin Infection care cream with ingredients and quantity for 50ml

Table:1 List of Ingredients with Quantity

| Sr. No. | Ingredients | Quantity | Uses |
|---------|-----------------|-------------|-----------------------|
| 1. | Borax | 1.6 gm | Emulsifier |
| 2. | Stearic acid | 7.50 gm | Thickener |
| 3. | Paraffin liquid | 18ml | Vehicle |
| 4. | Distilled water | 10 ml | Fragrance Agent |
| 5. | Rose water | 2 to 3 drop | Anti- Acne agent |
| 6. | Salicylic acid | 3.60 gm | Anti- Fungal agent |
| 7. | Neem | 1 gm | Anti- Bacterial agent |
| 8. | Tulsi | 1 gm | Anti- Microbial agent |
| 9. | Turmeric powder | 1 gm | Hydrate skin |
| 10. | Coconut oil | 5 ml | Preservative |
| 11. | Methyl paraben | 0.50gm | Softener |

Preparation of Cream



Application of ingredient used in formulation of skin infection care cream

Borax:

- Borax is used in the cosmetics industry. This slows the growth of bacteria in the humidifier Creams, shampoos, gels, lotions and body washes, Scrubs and bath salts.
- Cosmetics manufacturer Using borax as a buffer or emulsifier.
- Borax as raw material.
- Prevent or slow the growth of bacteria in humidifiers.

- Products such as creams, shampoos, gels, lotions and body washes Bombs, scrubs and bath salts.

**Fig. 4: Borax Powder**

Stearic Acid:

- Stearic acid used as emulsifier to thicken and stabilized the lotion.
- It has emollient property which helps to moisturize the skin to keep it softer and smoother.
- It has occlusive property, protecting the skin surface from Trans- Epidermal Water loss (TEWL)
- It helps the skin's pH level.



Fig.5: Weighing of Stearic acid\

Rose water

- Rose water can clam your skin.
- It has anti-aging property.
- Rose water makes great facial mist.
- Rose can be used to create fragrance.
- Rose water is a powerful ingredient in a facial treatment.
- It may hydrates the skin.
- It may help balance skin pH level.
- It has an Anti-inflammatory effect.



Fig.6: Rose water

Salicylic Acid

- Salicylic acid made in a lab is odorless and colorless. The acid tastes rather pleasant at first, then bitter. They should not be utilized once their shelf life, which is typically one year, has passed. It is regarded as one of the top remedies for acne scars and blemishes.
- It slows down and stops the growth of infections by stopping the fungus' metabolism.
- Salicylic acid topical is used to treat many skin disorders, such as acne, dandruff, psoriasis, seborrheic dermatitis of the skin and scalp, calluses, corns, common warts, and plantar warts, depending on the dosage form and strength of the preparation.



Fig. 7: Weighing of Salicylic acid

Neem Powder

Table:3. Detail of Neem

| | |
|--------------------------|------------------------------|
| Common name | Neem |
| Botanical name | Azadirachta indica |
| Family | Meliaceae |
| Biological source | Leaves of azadirachta indica |

- The antibacterial and antifungal characteristics of the neem tree are the basis for many of the tree's medical and aesthetic uses, which extend to nearly all of its components.
- Neem is frequently included in soaps or creams for skin disorders like acne, psoriasis, and athletes foot in addition to shampoos for treating dandruff.

- Neem has an anti-inflammatory property which helps reduce acne. Azadirachta Indica also helps reduce skin blemishes.



Fig. 8: Weighing of Neem powder

Tulsi Powder

Table:2.Detail of Tulsi

| | |
|--------------------------|-------------------------------|
| Common name | Tulsi |
| Synonyms | Holy basil, Sacred basil |
| Botanical name | Ocimum sanctum linn |
| Biological source | Leaves of ocimum sanctum linn |
| Family | Lamiaceae |

- Tulsi is proven to be the safest skin cream that can be used and the benefits are massive. Tulsi reflects on your skin when you consume it as well as applied.
- This wonder herb is used to treat acne, skin infections, lighten dark spots and improve skin texture. Here is a list of benefits that tulsi does to your skin.
- Tulsi helps in skin brightening.
- Tulsi helps in curing acne face marks.
- Tulsi mixed with eggs and mixed can help in tightening skin pores.
- Tulsi helps in curing skin infections and any sort of skin allergies.



Fig.9: Weighing of Tulsi powder

Turmeric powder

Table:3.Detail of Turmeric

| | |
|--------------------------|-------------------------------------|
| Common name | Turmeric |
| Synonyms | Haldi, curcuma |
| Botanical name | Curcuma longa linn |
| Biological source | Dried rhizome of curcuma longa linn |
| Family | Zingiberaceae |

- Turmeric helps heal skin wounds.
- It helps with some skin conditions.
- It helps reduce blemishes.
- It brings out the glow.
- Turmeric has anti-aging properties.
- Turmeric moisturizes dry skin.



Fig.10: Weighing of Turmeric powder

Coconut oil

- Coconut oil has primarily anti-inflammatory and hydrating properties in the skin.
- It has an anti-oxidant property.
- Coconut oil is excellent as a face moisturizer and softer.

- Coconut oil acts as a great scrub.



Fig.11: Measuring of Coconut Oil

Methyl Paraben

- Methyl parabens are a type of chemical that are often used as preservatives to give products a longer shelf life.
- Antimicrobial food preservatives
- Antifungal agent
- Allergenic testing agents

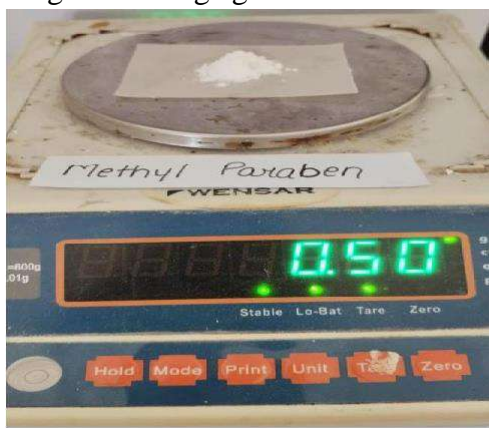


Fig.12: Weighing of Methyl Paraben

Paraffin liquid

- Liquid paraffin is a soothing agent.
- It reduce dryness and roughness and minor skin irritation.
- It helps soften and moisturize the skin and decrease itching.
- It reduce swelling and dark spots.



Fig.13: Paraffin Liquid

Preparation Procedure of Skin Infection care cream:

Step: 1 (For oil phase)

Take the liquid paraffin (18ml), coconut oil (5ml) and stearic acid (7.50gm) in a borosilicate glass beaker and heat up to 800 C and maintain that heating temperature.

Step: 2 (For aqueous phase)

In other beaker, dissolve borax (1.6gm) in distilled water (10ml) by maintaining temperature 800C on hot plate. Stir the solution with glass rod until all solid particles gets dissolved in water.

Step: 3

Then gently add oil phase in heated aqueous phase with continuous stirring.

Step: 4

After mixing both phase, immediately add Neem powder (1gm), Tusli powder (1gm), Turmeric powder (1gm) and methyl paraben (0.50gm) in to with continuous stirring by glass rod until it form a smooth cream.

Step: 5

- When the cream is formed, then adds rose water (2-3 drops) for fragrance.
- Then transfer this cream in container and mix the cream in proper manner to provide a smooth texture and for mixing of all ingredients properly.

Instruments and its role / uses

Various types of instrument used in preparation of skin infection care cream formulation are listed below:

Table: 3. Instrument and its role

| S.NO. | INSTRUMENT | ROLE/USES |
|-------|------------------|-------------------|
| 1. | Weighing balance | Weighing |
| 2. | Hot Plate | Heating |
| 3. | pH Meter | Measurement of pH |
| 4. | Thermometer | Temperature |

EVALUATION OF SKIN INFECTION CARE CREAM

The cream was evaluated for organoleptic properties, homogeneity, smoothness, absorbency, irritancy, pH, stability, washability test.

Determination of organoleptic properties:-

The appearance of the cream was judged by its color, odor texture.

Determination of pH:-

The pH meter was calibrated and measured the pH of cream by digital pH meter placing in the beaker at room temperature.

Washability Test:-

The removal of the cream applied on skin was done by washing under tap water with minimal force to remove the cream.

Irritancy test:-

The cream was applied on left hand dorsal side surface of 2sq.cm and observed in equal intervals up to 24hrs for irritancy, sensitivity and edema.

Determination of homogeneity:-

The formulations were tested for the homogeneity by visual appearance and by touch.

Spreadability test:-

1gm of the prepared cream was taken in to glass slide and cover with second slide. Then a weight of 100gm was placed on upper slide. The weight was removed and extra formulation was scrapped off. The lower slide was fixed on board of apparatus and upper slide was fixed with non-flexible string on which 100gm load was applied. Time taken by upper slide to slip off was noted down.

$$S = m \times l / t$$

Where,

S – Spread ability

m- Weight tied to upper glass slide. l- Length moved on a glass slide

t- Time taken.

The determinations were carried out in three times and the average are readings was recorded and calculate.

Stability test:-

The stability test of final optimized cream was measured out and it was found that the cream was stable in room temperature for at least three months. The value of pH and spreadability all lay within the required range. In which no major changes in values of pH and spreadability as compared to the initial value of formulation.

Smoothness:-

The smoothness of the cream formulation was tested by rubbing between the fingers and observes whether the gel is smooth, clumped, homogenous or rough.

Absorbency:-

Rated at which product is perceived to be absorbed into skin. Evaluated by noting changes in skin surface.

RESULT AND DISCUSSION

The Skin Infection care cream was formulated by using various type of ingredients such as Neem, Tulsi, Turmeric, coconut oil and rose water etc. Neem contain anti- fungal agent protect skin against fungal infection. Tulsi contain anti-microbial activity. They protect skin from pathogen and microbes. Turmeric has anti- aging property. The Skin Infection care cream was evaluated to various parameter such as physical parameter, pH, washability, irritancy, homogeneity, smoothness, etc used to check the quality and performance of formulation. The effect



of different ingredients in the formulation was investigated. The main goal of present research was to formulate and evaluate skin infection care cream which are prepared from herbal plant. The physical property of formulation such as color is Yellow, odor is pleasant, and state is semi-solid.

The pH of formulation is (6.95) and washability is also good.

Physical Evaluation

Physical evaluation such as color, odor, texture and state were checked. The color was found to be yellow, odor found to be pleasant, texture found to be smooth and state was found to be semi solid.

Table:4. Physical Evaluation of Skin Infection Care Cream

| Sr. No. | Parameter | Formulation |
|---------|-----------|--------------|
| 1. | Color | Yellow |
| 2. | Odor | Pleasant |
| 3. | Texture | Smooth |
| 4. | State | Semi – solid |

Texture:

It is applied on hand and then its texture is checked according to its foam and smoothness.

Stability:

The stability test was carried out for three months and results revealed that the all cream showed better stability. The preparation was stable under normal storage conditions.

Irritancy:

It was laid on the layer of skin and allow to absorb. An hour was used for examining the skin for any symptoms of inflammation, redness, itching, or discomfort.

pH:

pH of the cream was found to be 6.95 during the study which is slightly acidic good for skin.



Fig:14. pH of Skin Infection Care Cream

Spreadability test:

Creams and showed shear-thinning behavior so spread easily. The spreadability of creams were ranging from 5.26 ± 0.18 to 6.24 ± 0.24 g.cm/s. Cream base should spread easily without too much drag and should not produce greater friction in the

rubbing process. Spreadability was calculated using the spreadability apparatus made of wooden board with scale and two glass slides having two pans on both sides mounted on a pulley.



Fig:15. Spredibility test of Skin Infection Care Cream

CONCLUSION:

The formulation of skin infection care cream for psoriasis and fungal infection and it showed effect on both. Salicylic acid in this formulation was very useful as anti-acne activity. Neem gave special effect as antiseptic as well as antifungal. Turmeric show the anti-cancer, inflammation and protects health disease. Tulsi has proved to be highly effective in protecting our body from various infections and diseases of the liver, skin, kidney, etc. The cream was steady at ambient temperature and can be topically apply on the skin based on evaluation standards and outcomes. In this study, a formulation of Skin Infection care cream was prepared and evaluated in terms of their organoleptic properties [Appearance, Color and odor] and physiological parameters pH, sprediability, washability and irritancy test. The present work focus on the poly herbal extracts provide ingredients necessary for treat the skin

infection. There are numerous herbs available naturally having different uses in cosmetic preparations for skincare as anti- infection's. Herbal skin infection care cream will avoid skin problems. The uses of cosmetic have been increased in many folds in personal care system. The use of bioactive ingredient in cosmetic influence biological functions of skins and provide ingredients necessary for the healthy skin.

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HOW TO CITE: Sushil Kumar Pal , Shashank Tiwari ,
Vaibhav Raj Pandey , Formulation And Evaluation Of
Skin Infection Care Cream, Int. J. of Pharm. Sci., 2024,
Vol 2, Issue 8, 3189-3207.
<https://doi.org/10.5281/zenodo.13331501>

