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Formulation & Evaluation of Poly-Herbal Ointment

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Abstract: ***Wound healing is a complex process of recovering the forms & functions of injured tissues. The process is tightly regulated by multiple growth factors & cytokines released at the wound site. Any alternations that disrupt the healing process would worsen the tissue damage and prolong repair process. Various conditions may contribute to impaired wound healing including infections underlying diseases and medications.***
Salves, or ointments, are topical products in which the herbs are extracted into vegetable oils by maceration at either room temperature for a specified length of time, in a low heat infusion or in a higher heat decoction.
Numerous studies on the potential of natural products with anti-inflammatory, anti-bacterial, anti-fungal properties as wound healing agents have been performed .Their medicinal properties can be contributed by the content of phytochemical constituents such as Azadirachta indica (Neem leaves),Triticum (wheats), Vitis vinifera(Grape seeds),Helianthus annus (sunflower seeds), Oryza sativa (brown rice)
Keywords: anti- fungal, anti bacterial, anti inflammatory, scar reducing.

I. INTRODUCTION

Herbal ointments are the preparation to maintain the good skin health and by preventing the skin irritation. Herbal medicine refers to the use of any plant seeds, berries, roots ,leaves ,bark ,or flowers for medicinal purposes. Along with other dosage forms ,herbal drugs are also formulated in the form of ointments. An ointment is a viscous semisolid preparation used topically on a varity of body surfaces. The objective of the study was to formulate and evaluate the anti microbial and anti fungal and scar reducing herbal ointment from the local medicinal plants. The most effective combinations is determined by comparing the results of zone of inhibition given by the 10 different ratios on staphycoccusareus, Escherichia coli and klebsellia species. Then the minimum inhibitory concentration of the effective combinations was find out. Herbal medicine also called botanical medicine or phytomedicine. Herbalism become more main stream as up to date analysis and research show their value in the treatment and prevention of diseases. Plants had been used for medicinal purposes long before recorded history.

The components used in herbal ointment have demonstrated anti-inflammatory,anti-fungal ,anti-bacterial. They are organic and perform more advantageous actions. Due to the presence of various phytochemical constituents that supports the skin health and healing properties to wound scars to the skin and enhance the bodily biological processes, the raw materials used to make the herbal ointment have better effects. These components work together to produce therapeutic effects and also lessen the chances of side effects from any one component. Several herbs are often used together to enhance effectiveness and to reduce toxicity.

In earlier study, medicinal plants have been reported to be very beneficial in wound care, promoting the rate of wound healing with minimal pain, discomfort, and scaring to the patient. The objective of the study was to formulate and evaluate the scar reducing herbal ointment from the local medicinal plants (Sule and Agbabiaka, 2008).

Wound healing, as a normal biological process in the human body, is achieved through four precisely and highly programmed phases: haemostasis, inflammation, proliferation, and remodelling. For a wound to heal successfully, all four phases must occur in the proper sequence and time frame.

Haemostasis phase: It is the primary phase of wound healing to stop any bleeding.

Inflammation phase: In this phase, involving mainly activation of innate immune system ,neutrophils ,monocytes rapidly migrate into injured skin.

Proliferation phase: In this phase, the provisional wound matrix formed during haemostasis is replaced by granulation tissue ,which partially recovers the structure and function of the wounded skin.

Remodelling phase: It is the final phase of healing process which the granulation tissue matures into scar and tissue tensile strength is increased.

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II. SKIN PROBLEMS

We all want the healthy skin and winning skin color. However, now-a-days rashes, allergies are common after every small wounds .Some of the common skin problems are:

A. Actinic Keratosis

1) This condition causes a thick, scaly, or crusty skin patch.
2) It often appears on parts of the body that receive a lot of sun exposure, such as the hands, arms, face, scalp, and neck

B. Rosacea

1) This chronic skin disease goes through cycles of fading and relapse.
2) Relapses may be triggered by spicy foods, alcoholic beverages, sunlight, stress, and the intestinal bacteria Helicobacter pylori.
3) Common symptoms include facial flushing, raised red bumps, skin dryness, and skin sensitivity.
4) People with darker skin tones may notice brown discoloration or dry and swollen patches of dark skin.

C. Eczema

1) Eczema is characterized by pink, red, brown, purple, or gray, sometimes with scaly patches that flake off.
2) Affected areas may be itchy, greasy, or oily.
3) On light skin, eczema can cause a red rash. This rash may appear brown, purple, or gray on darker skin.
4) Hair loss may also occur in the area with the rash.

D. Cellulitis

1) Cellulitis is caused by bacteria or fungi entering trusted source through a crack or cut in the skin.
2) It causes painful swollen skin with or without oozing that spreads quickly.
3) The skin might appear red on lighter skin. However, this may be less noticeable on darker skin tones.
4) The skin may feel hot and tender to the touch.
5) Fever, chills, and red streaking from the rash might be symptoms of a serious infection requiring medical attention.

III. MATERIALS AND METHODS

The various plant parts that have skin care properties are chosen for study. The plants include :

1) *Neem Leaves:* Neem leaf (Azadirachta indica) and its constituents have been demonstrated to exhibit immunomodulatory, anti-inflammatory, anti-hyperglycaemic, antiulcer, antimalarial, antifungal, antibacterial, antiviral, antioxidant, antimutagenic and anticarcinogenic properties. Neem also plays role as anti-inflammatory via regulation of proinflammatory enzyme activities including cyclooxygenase (COX), and lipoxygenase (LOX) enzyme.
2) *Turmeric Powder:* Turmeric works as a skin lightening agent for your skin. The curcumin in it reduces the excess melanin production and lightens your skin tone. Adding turmeric to your skincare routine can brighten your skin tone and reduce any kind of dark spots and pigmentation. This remedy helps in tan removal and brightens the skin. Turmeric powder is absolutely a wonder ingredient that lightens dark spots. You need to combine turmeric with other resources to get fast results.
3) *Brown Rice:* Brown rice is abundant in phenols, flavonoids, and antioxidants, which have anti-inflammatory, antioxidant, and anti-cancer properties. Rice bran, a by product of brown rice, is particularly useful in cosmetics. It has moisturizing, whitening, and skin-improving effects, as well as the ability to remove skin wastes. Brown rice contains B-vitamins like niacin, thiamine, and pantothenic acid which are essential for maintaining healthy skin. Brown rice also contains high amounts of water which helps keep your skin hydrated and healthy.
4) *Sunflower Seeds:* From protecting your skin against the harmful effects of the sun, to reducing effects of pollution, sunflower seeds pack quite a punch. It helps in preventing clogged pores, eliminating impurities present in the skin, and giving it an overall brighter appearance.
5) *Milk Powder:* Right from treating acne to giving you younger-looking skin, milk powder has numerous beauty benefits. It is a rich source of lactic acid and acts as a natural cleanser. Moreover, it is also an excellent source of Vitamin B which helps in the production of the new cells. Besides skin lightening, what makes milk powder an apt ingredient for the skin is the concentration of vitamins and minerals. This acts as a skin purifier. It can also rid the skin of unwanted impurities like blackheads and whiteheads". The mixture of milk powder, helps remove dark spots and pigmentation on the skin and restores back the natural glow and the freshness of the skin.

6) *Wheats:* Wheat protein, when included in skincare products, improves skin hydration, suppleness, and general skin health, making it a great addition to skincare regimes. In anti-aging skincare products, wheat extract is mainly used for its immediate tightening, smoothing and firming properties. At the same time, wheat is very gentle and skin-friendly, which makes it suitable for many different skin types. They help maintain skin elasticity by stimulating collagen production. They also have anti-inflammatory properties that can soothe irritations and redness. Rice Proteins: They are rich in vitamins, minerals, and amino acids that nourish and hydrate the skin.

A. *Formulation of Herbal Ointment*

Table-1:Composition table

Sl.no	Ingredients	Biological name	Quantity taken	Medicinal uses
1.	Neem powder	Azadirachta indica	3gm	Anti-inflammatory.
2.	Turmeric powder	Curcuma longa	3gm	Antioxidant and Anti-inflammatory.
3.	Brown rice	Oryza sativa	3gm	Hydrate skin and Reduce the dark spots
4.	Sunflower seeds	Helianthus annuus	3gm	Anti-bacterial and makes our skin glow
5.	Milk powder	-	3gm	Anti-acne agent and helps in making skin young looking.
6.	Wheats	Triticum	3gm	Rich in proteins ,minerals ,amino acids.

B. *Method of Preparation*

Firstly ,Neem leaves ,Brown rice ,Wheats ,Sunflower seeds are collected. At this point, a small amount of turmeric powder ,milk powder is taken. Clean all the ingredients with fresh water, then air-dry them. With the aid of motor and pestle ,all the dried ingredients are grounded into powder. The finely powdered solid particles are passed through a sieve #250.By the need, the powder is weighed i.e.., Neem powder (3gm),Turmeric powder (3gm),Brown rice (3gm),Sunflower seed powder (3gm),Milk powder (3gm), Wheat powder(3gm).After weighing the required quantity of ingredients the ointmental-base also been weighed as required and triturate them all by mixing. And add the remaining amount of base until the medicament is uniformly mixed.



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IV. EVALUATION OF PREPARED OINTMENT:

In terms of colour, prepared ointment was assessed. Visual inspection of the colour revealed that the ointment has a pleasing colour.

1) *Odour:* A pleasant odour was discovered by applying the product .
2) *Spread Ability:* The amount of space of ointment applied to skin was spread easily without too much drag and didn't produce greater friction in the rubbing process.
3) *Stability:* The ointment kept in dry and room temperatures it was more stable.
4) *Determination of pH:* A sample of about 2 gm was placed in 50 ml beaker. 10 ml sterile water is added to the sample through suspension was achieved by vigorous stirring. A pH meter was used to calculate the suspension pH noted as 6.5
5) *Non-irritancy:* The product which is produced was non-irritant, which don't cause toxic or irritation after the application of our ointment.

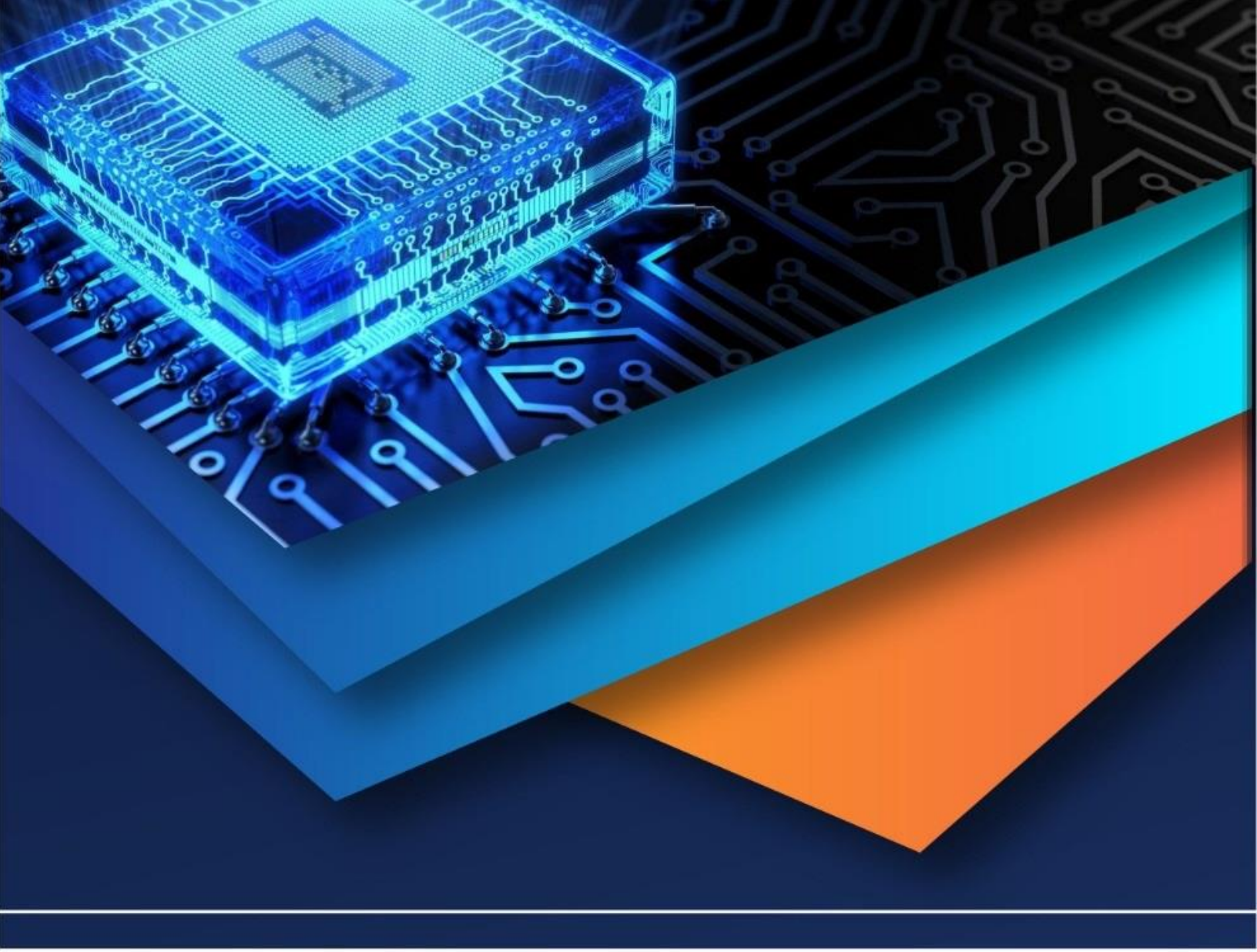
A. Determination of anti-microbial test;

In a petri-plate, we need to prepare the medium which inoculated with the loop by making strikes in it. At that strikes our sample is placed in one of them and placed in the laminar air flow for 24hrs. The place where our sample is taken are aware of microbes and remaining can be observed as growth of microbes. This result can conclude us the prepared ointment has Anti-microbial property.

V. CONCLUSION

The ingredients used in this study were screened and chosen based on their ability to maintain skin hygiene ,whitening and reducing scars to act as effective ointment. Any herbal ointment is considered safe to use twice daily and has no negative side effects. It gives good freshness by applying and also using herbal ointment is safe and affordable way to maintain skin hygiene. This study conclude that natural ointments are safer with fewer side effects than the synthetic preparations. The ointment formulation demonstrates anti-fungal activity and can be used to keep skin safer from scars and some microbial factors like fungal rashes, inflammation after scar, etc… The developed herbal ointment is. expected to be used by the general public.

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