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Research Article

Formulation And Evaluation Of Herbal Anti Acne Cream Of Peppermint Extract

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ABSTRACT

Every person has experienced acne, pimples, sunburns, and pigmentation at some point in their lives. Customers are looking for products like anti-acne cream that can treat their skin conditions and give them beautiful, healthy skin. To create and assess a cream with peppermint oil that will have a brightening and anti-acne effect. Bees wax, liquid paraffin, borax, distilled water, and almond oil were used to make the cream base. Herbal cream is a preparation that people use to treat a variety of illnesses or infections. While more and more cosmetic preparations are available that contain antioxidants, sun protection, and moisturising agents, their presence slows down the ageing process of the skin. To produce a high-quality, multifunctional, safe, and stable product, a herbal formulation must be developed. However, the majority of creams on the market are loaded with chemicals that could cause adverse effects for the user. The goal of the current study was to create, assess, and contrast the sun protection, erythema-reducing, and hydrating properties of a herbal w/o cream that contains a natural product extract from peppermint leaves in the right amounts. The various concentrations of the natural medication were used to formulate the various types of cream of water in oil. Every formulation was evaluated based on various parameters, including pH, viscosity, spread ability, and stability. There is no indication of phase separation, and the formulation is easy to remove. It demonstrated good spreading ability. During the irritancy study, there is no redness, edoema, inflammation, or irritation. It is safe to apply these formulations in order to verify the other parameters. According to these studies, the extract's composition and the cream's base are safer, more appropriate, and stable.

INTRODUCTION

Creams are categorised as semisolid emulsions meant for external use. Either water in oil (w/o) or

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oil in water (o/w) can be present. There are two types of cream: oil in water and water in oil emulsion. The principal purpose of the substance is to remain longer at the location of application when it is applied to the outer or superficial skin layers. The Cream's functions include treating infections, calming the skin, and shielding it from outside influences. It also aids in acne and tan lines. Creams come in a variety of forms, such as vanishing, cleansing, hand, body, and foundation creams. Our main objective is to develop a herbal cream that will lighten wrinkles, improve skin tone, and reduce acne and skin irritation. Global statistics show that 85% of people will get acne between the ages of 12 and 25, 8% of adults between the ages of 23 and 24, and 3% of adults between the ages of 35 and 44 will get acne.[1,2,3] Acne is a serious condition, particularly in adolescents and teenagers. Propionibacterium acne and Staphylococcus aureus were the cause of the acne because they were discovered in the patient's sample at the same time. The bacteria that cause acne are becoming increasingly resistant to antibiotics, which is a worrying development. Customers are growing more interested in natural bioactive compounds as useful ingredients in cosmetic products due to their many health benefits. They may benefit skin health in addition to their nutritional and sensory attributes by acting as a protective agent. Certain skin conditions can have negative psychosocial effects on an individual, including low self-estimable social withdrawal due to embarrassment or, in the worst case scenario, suicidal thoughts, even though they may be self-limiting. An amazing organ, the skin and its appendages serve as the first line of defence against a variety of bacterial invaders. Skin weakness and disease are naturally defended against when the skin's integrity is inadvertently or globally compromised. A persistent inflammatory condition affecting the pilosebaceous unit is acne vulgaris. It is most common during adolescence,

when people are adjusting to a number of psychosocial changes. More than 80% of teenagers are affected, and 3% of men and 12% of women still experience it after the age of 25. It has been established that *S. epidermidis* and *P. acnes* are pus-forming bacteria that cause acne inflammation. Anaerobic, gram-positive diphtheroid Lipases, which are produced by *P. acnes*, hydrolyse triglycerides from sebaceous glands into free fatty acids. These fatty acids are the cause of acne lesions, along with other elements of sebaceous secretion and It's been proven. The pus-forming bacteria *P. acnes* and *S. epidermidis* are responsible for acne inflammation. *P. acnes* produces anaerobic, gram-positive diphtheroid Lipases that hydrolyse sebaceous gland triglycerides into free fatty acids. Acne lesions are caused by these fatty acids as well as other components of sebaceous secretion and bacteria. The first line of treatment for mild to moderate acne vulgaris is topical antimicrobial agents; however, the emergence of antibiotic-resistant strains of *P. acnes* has complicated antimicrobial therapy for acne. Concern over the progressive global rise in the prevalence of *P. acnes* strains resistant to antibiotics has grown during the last 20 years. People are turning to herbal remedies because prolonged use of antibiotics has led to the emergence of resistant strains of *P. acnes* and numerous negative effects. Numerous herbal remedies, including those for acne, have been mentioned as being helpful in treating a variety of skin conditions in the Unani System of Medicine. Since ancient times, unani doctors have been treating acne with a variety of herbal medicines, either alone or in combination, topically or orally, and the medications are thought to be safe. Tea tree oil and peppermint extract are the two herbal ingredients.[4] We have used to herbal ingredient in our preparation which are peppermint extract and tea tree oil. Peppermint is used as anti acne . also used for joints pain , stomach pain and aid



digestion and mainly used in toothpaste formulations. Peppermint is a main active ingredient and Tea tree shows the many other properties such as antibacterial, antifungal, and reduce inflammation and enhance healing. The

almond oil is used as fragrance and other ingredients used as per their uses. We tried to make effective cream which is suitable to all skin type.[5]

TYPES OF ACNE



Fig No.1

FACTORS AFFECTING FOR ACNE

1. Propionibacterium acnes (P. acne)
2. Altered follicular keratinization
3. Inflammation
4. Androgen-induced enhanced sebum hyper-production
5. Medications.
6. Due to the Cosmetics Used
7. Stress
8. Hormonal Changes and Menstruation
9. Squeezing the Pimples.
10. Diet
11. Genetic
12. Over Washing the Face with Cleanser

TREATMENT OF ACNE

- Mild acne: Benzoyl peroxide
- Moderate acne: Topical retinoids/ antibiotics
- Severe acne: Hormonal therapy

The pharmaceutical industry has developed a number of drugs, including anti-acne pills, lotions, moisturisers, and creams, to address this issue. Creams are a kind of semisolid emulsion that are designed to be applied externally. They come in two varieties: water in oil (w/o) and oil in water (o/w). Cream is classified as an oil and water

emulsion. Its main advantage is that it lasts longer at the application site. It is applied to the skin's outermost or most superficial layer. The purpose of the cream is to protect the skin from the elements, heal infections, fade tans and acne, and calm the skin. Applying the cream to skin with a topical drug delivery system is recommended.[6]

PLANT PROFILE :

1. PEPPERMIT LEAVES :

Biological name :

Mentha piperita

Biological source :

Extracted from the stem, leaves, and flowers of Mentha piperita L. plant,

Family : Lamiaceae

Chemical constituents :

menthol (40.7%) and menthone (23.4%). Further components were (+/-)-menthyl acetate, 1,8-cineole, limonene, beta pinene and beta-caryophyllene The anti-microbial activity and anti-septic property of peppermint essential oil help in reducing pimples and lesions like papules, pustules, nodules, cysts, and active comedones . Peppermint oil in face masks and cleansers helps

to regulate sebum production and distribution on oily, combination and acne-prone skin.

- Other uses of peppermint
- Relives hair care
- Eliminate nausea
- IBS0
- Hair care
- Muscle aches
- Joint pain
- Supporting the respiratory system
- Boosting athletic performance[7]



Fig no 2: Peppermint leaves

MATERIALS USED

Table 1. Ingredients used :

Sr no	Ingredients	Activity
1.	Peppermint oil	Antimicrobial
2.	Tea tree oil	Antimicrobial and anti-inflammatory
3.	Glycerin	humectant
4.	Sodium lauryl sulphate	Emulsifier
5.	Borax	Antibacterial and antifungal
6.	Citric acid	Protective antioxidant
7.	Steric acid	Emollient and emulsifier
8.	Liquid paraffin	Moisture skin
9.	Methyl paraben	preservative
10.	Vitamin E	Antioxidant and moisturizing properties
11.	Cetyl alcohol	Opacifier and emulsifier
12.	Almond oil	Fragrance

EXTRACTION OF PIPPERMINT OIL :

Weighing 38gm of peppermint leaves
↓
Add 180 ml ethanol and 200 ml of water
↓
Extraction solvent extraction



Fig no 3 :Extraction of peppermint leaves

↓
+filtering + collected supernatant
↓



Fig no 4: Peppermint extract

↓
Constant volume , extracting liquid was obtained.^[10]

METHOD OF PREPARATION :

1. Weigh accurate quantity of all ingredients of oil phase and aqueous phase.
2. All oil soluble ingredients such as stearic acid, liquid paraffin, cetyl alcohol, tea tree oil, and almond oil taken in first beaker.
3. Then heat it on boiling water bath at 70 to 80°C (name as beaker A oil phase) .
4. Then at same time all the water soluble ingredients such as borax, methyl paraben, glycerine, vitamin E, citric acid, sodium lauryl sulphate, API, and water taken in second beaker.
5. Then heat it on boiling water bath at 70 to 80°C (name as beaker B aqueous phase) .
6. After heating the aqueous phase slowly added in oil phase with continuous stirring until the cream was form.[11]



Fig no 5: Anti acne cream

Evaluation Test Of Anti Acne Cream :

1. Physical Properties:

The cream was observed for the colour, odour, and appearance.

Table 2

Sr.no	Parameters	Evaluation
1.	Colour	White
2.	Oduor	Pleasant
3.	Texture	Smooth

2. Washability

The cream cream applied on the skin was easily removed by washing with tap water.[13]

3. PH of the cream :

The PH of the cream was found to be in range of 6.5 to 7.5 which is good for skin pH.The herbal formulation was shown PH nearer to skin required i.e. pH 7.1.[14,15]

4. Spread ability :

The spread ability test showed that the formulated cream has good spreadable propertie.[16]

5. Irritancy test :

The formulated cream shows no redness, oedema, irritation, and inflammation during studies. The formulated cream is safe to use.[17]

6. Homogeneity :

The homogeneity of the formulated cream was judged by the visual appearance and touch. The appearance and touch of the cream was good.[18]

7. Test for microbial growth :

After preparing the agar medium, the designed cream was infected using the steak plate method on the agar media, and a controlled was created by leaving out the cream. After being put in the incubator, the plates are incubated for 24 hours at 37 C. The plates were removed from the incubator after the incubation period, and the microbial growth was examined and contrasted with the control.[19]

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