Formulation And Evaluation of Polyherbal Knee Pain Relief Cream

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Abstract*— Medicinal plants, minerals, and organic materials are commonly used to make traditional remedies. In recent years, there has been an increased focus on the use of several medicinal plants from the traditional medical system to treat a variety of ailments. Conventional medicine has made use of. The Lauraceae family includes the everlasting tree of tropical medicine, cinnamon (Cinnamomum zeylanicum and Cinnamon cassia). One of the most significant spices that people use on a daily basis worldwide is cinnamon. Essential oils and various derivatives, including cinnamaldehyde, cinnamic acid, and cinnamate, are the main ingredients of cinnamon. Apart from its numerous health benefits, such as anti-inflammatory, anti-cancer, antidiabetic, antibacterial, lipid-lowering, and cardiovascular disease-lowering properties, cinnamon has also been shown to have anti-neurological illnesses, including Parkinson's and Alzheimer's diseases. This article provides an overview of cinnamon's pharmacological potential and practical applications. Cinnamon's medicinal benefits may be attributed to secondary metabolites such as flavonoids, tannins, saponins, steroids, glycosides, coumarins, anthraquinones, and alkaloids. The Numerous healthy chemicals, including antioxidants, can be found in cinnamon. According to some research, it might aid in blood sugar regulation, heart disease prevention, and inflammation reduction. For thousands of years, cinnamon has been valued for its therapeutic qualities. It possesses antioxidant qualities. Similar to other spices, polyphenols are plant chemicals with antioxidant and protective qualities found in cinnamon. These substances underpin the many health advantages of cinnamon as well as its function as a food preservative. Apart from its numerous health benefits, such as anti-inflammatory, anti-cancer, antidiabetic, antibacterial, lipid-lowering, and cardiovascular disease-lowering properties, cinnamon has also been shown to have anti-neurological illnesses, including Parkinson's and Alzheimer's diseases.

***Index Terms*— Knee pain, Aloe vera gel, Cinnamon oil, Turmeric, polyherbal Cream**

I. INTRODUCTION

(Knee Pain)

The knee joint is one of the most complex joints in the human body, and is designed to provide mobility and stability. It is a form of hinge joint, with the two main movements being flexion (bending the knee) and extension (straightening the knee). It is not, however, a true hinge joint, as it also allow for rotation of the tibia (the shin bone). The knee is also called the tibio femoral joint and refers to the region where the thigh bone (femur) joins with the shin bone (tibia). The stability of the knee joint depends mainly upon the ligaments, joint capsule, and surrounding muscles.

Bones

The femur (thigh), tibia, fibula (lower leg bones) and patella (knee cap) make up the bony structure of the knee joint. The ends of the bones and back of the patella are covered in smooth cartilage. The patella (knee cap) is located in the tendon of the quadriceps (thigh) muscle.

Ligaments And Tendons

Ligaments are strong bands of connective tissue linking bone to bone, and tendons link muscle to bone. The medial/lateral collateral ligaments (on the inside and outside of the knee), the anterior/posterior ligaments (situated within the knee at the front and back of the knee respectively) and the cruciate ligaments all play a vital role in the normal biomechanics (movement) of the knee and aid in creating a stable joint. Anterior Cruciate Ligament (ACL) prevents the shin bone from moving forwards

during weight bearing. It also works with the muscles to stabilise the joint in fexion, extension and rotation. Posterior Cruciate Ligament (PCL) prevents the shin bone from sliding backwards on the thigh bone, and prevents over straightening (hyperextension) of the knee. Medial Collateral Ligament (MCL) helps to stabilise the inner aspect of the knee and prevents excessive widening of the medial (inside) section of the knee joint where the thigh bone meets the shin bone. Lateral Collateral Ligament (LCL) helps to stabilise the outer aspect of the knee and prevents excessive widening of the lateral (outside) section of the knee joint. Iliotibial Band (ITB) acts as dynamic stabiliser on the outside aspect of the knee.

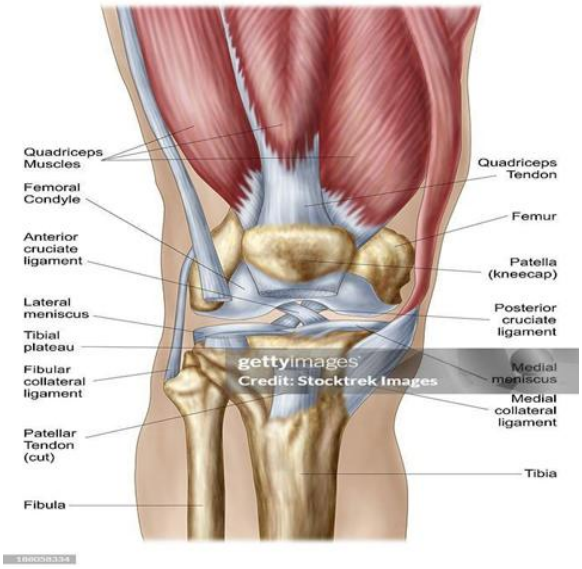


Figure. Knee Diagram

Menci

These are two oval spongy discs that cushion any stresses placed on the knee joint. The medial & lateral menisci form a shock absorber within the knee joint, absorbing some of the

force which goes through the knee during movement and activity. They also stabilise the knee (especially when it is bent at a 90° angle) and play a role in joint lubrication and nutrition.

Due to the reduced blood supply to the meniscus, damage may result in part of the meniscus being removed, if it is unable to heal after a repair.

Bursae

A bursa is a flattened sac found between muscle and bone, tendon and bone, tendon and ligament and so forth. Bursae aid in reducing the friction between the anatomical structures.

Muscles

The thigh muscles are made up of a group of four muscles known as the quadriceps. The quadriceps muscles contract together to straighten the knee (extension). The muscles at the back of your leg are the hamstring muscle group, which consists of three muscles that work together to bend the knee. The knee muscles, however, do not always act in isolation, and muscles of the hip and lower leg also contribute to knee movement

Ligament Injuries

Cruciate ligament injuries- are usually caused by sudden twisting or hyperextension (excessive straightening) motions of the knee (ACL), or by a direct blow to the knee (ACL/PCL). These are characterized by a ‘popping’ sound and giving way of the leg when weight bearing. Collateral ligament injuries- are caused by direct impact to the side of the knee, which causes a stretch or tear to the ligament on the opposite side of the knee. The joint is often unstable following these types of injuries.

Tendon

Patellar tendonitis – repetitive stress on the quadriceps muscle causes strain on the patella tendon. It may become swollen or torn, causing pain in the lower aspect of the knee, from under the knee cap. It is usually called Jumper’s Knee, and results from overdoing a movement or activity. Iliotibial Band Syndrome (ITB) - is an ache or burning pain on the outside of the knee caused by the ITB rubbing against the outside of the knee bone. It is often caused by muscle imbalances that become symptomatic when the knee is overused (such as overtraining in long distance running), and the pain usually worsens when resuming this activity.

Cartilage And Structural Damage

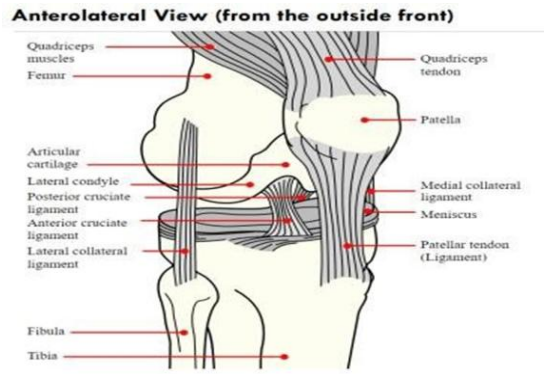
Anterior Knee pain (Patellofemoral syndrome) - is a wearing of the cartilage at the back of the patella, caused by friction against the femur. It can occur due to trauma, muscle weakness or overuse of the knee. A dull pain around or under the knee cap is felt, and is often worsened with weight bearing, especially walking down stairs. Meniscus tears - occur when weight is applied to the knee whilst it is twisted or

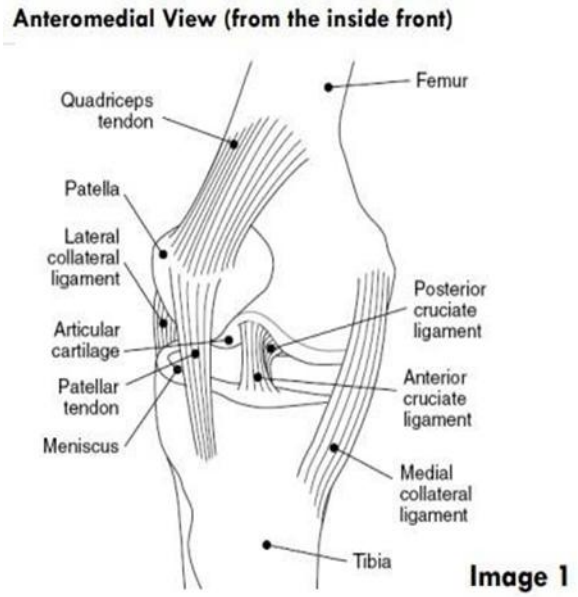
rotated (like turning to hit a tennis ball). The knee may 'lock', click or feel as if it is going to give way, following this type of injury.

Osteoarthritis– is a degenerative condition where the joint cartilage gradually wears away, causing pain and swelling. It is common to have morning stiffness which eases when moving about, with osteoarthritis. The joint may also lock or click with movement. Common knee problems REST Stop using the injured area. Allow your injured region to rest from weight bearing, or any activity that brings on symptoms, for approximately 24 hours after the injury. You can move the area, but make sure that it is pain free to prevent any further damage ICE Ice the area every 2 hours for 15- 20 minutes to decrease pain and swelling for the first 48-72 hours COMPRESSION Apply pressure to the area in the form of a stocking, tight sock, brace, strapping or bandage to provide both support and pressure to decrease any swelling.

Knee Pain Genral Information

Knee pain can occur without an accident of injury. Pain can be the result of simple functional activities like getting up from a chair or kneeling, however sometimes there is no clear reason for your knee to hurt.All joints and soft tissues have a certain amount of activity that they can tolerate. This level can go up and down depending on how much activity you do. For example, following a period of rest or illness your activity tolerance can drop quite quickly. If you then do an activity that takes you above this level you can present with a painful reaction.Activities that can cause a painful reaction are: kneeling, squatting, repetitive stairs or ladder climbing, and a general increase in your normal daily activities. Often you may not get a painful reaction at the time of activity it can come on over the next 24 hours.





Introduction

(Herbal Cream) Figure.1

Herbal formulations have been an integral part of traditional healthcare systems for centuries, especially wit. hin Ayurveda, Siddha, Unani, and various folk medicinal practices. In recent years, there has been a significant resurgence in the use of herbal products, primarily due to their perceived safety, minimal side effects, and holistic therapeutic benefits. Among the various herbal dosage forms, topical creams have gained remarkable popularity because they allow direct application of active constituents to the affected site, ensuring quick action and reduced systemic exposure.

1. polyherbal formulation is a combination of more than one herbal ingredient, designed with the idea that multiple herbs act synergistically to enhance therapeutic efficacy. The concept of polyherbalism is well-established in Ayurveda

and is based on the principle that combining herbs increases the bioavailability of active phytoconstituents, reduces toxicity, and produces multi-directional pharmacological actions. This synergistic approach makes polyherbal creams highly effective for a wide range of conditions, including inflammation, pain, microbial infections, wounds, burns, and various dermatological disorders. Topical herbal preparations provide several advantages over internal dosage forms.

2. When applied to the skin, phytoconstituents penetrate through the epidermis and reach the underlying tissues where they exert anti-inflammatory, analgesic, antimicrobial, antioxidant, or soothing actions depending on the plant used. Additionally, topical application bypasses hepatic first-pass metabolism, improving the local bioavailability of active compounds such as curcuminoids, flavonoids, tannins, essential oils, and terpenes
3. Polyherbal creams generally contain ingredients like aloe vera, turmeric, camphor, mint, cinnamon, ginger, or other medicinal herbs depending on the purpose of the formulation. Each herb contributes unique therapeutic actions: for example, aloe vera exhibits moisturizing and wound-healing properties.The formulation of an herbal cream requires careful selection of herbal extracts, a suitable base, preservatives, emulsifying agents, humectants, and stabilizers. The cream base commonly used is an oil-in-water (O/W) emulsion, which is non-greasy, easily spreadable, and patient-friendly. The evaluation parameters include organoleptic characteristics, pH, viscosity, spreadability, washability, stability studies, microbial load testing, and irritancy testing. These parameters ensure that the formulation remains safe, effective, and stable throughout its shelf life.Thus, polyherbal topical creams represent a promising and consumer-friendly approach to managing various ailments. They combine traditional medicinal wisdom with modern pharmaceutical techniques to create safe, effective, and naturally derived therapeutic alternatives

Figure.2

Advantages Of Polyherbal Creams

1. Synergistic Therapeutic Action Multiple herbs work together to enhance each other's pharmacological effects, providing better efficacy compared to single-herb formulations.
2. Reduced Side Effects Herbal active constituents are generally milder on the skin and produce fewer adverse reactions than synthetic drugs.
3. Direct Localized Action Creams deliver active components exactly where they are needed—at the surface or deeper layers of the skin—offering faster relief.
4. Bypasses First-Pass Metabolism Since herbal actives are applied topically, they avoid hepatic metabolism and maintain higher local concentrations.
5. Better Patient Compliance Since herbal actives are applied topically, they avoid hepatic metabolism and maintain higher local concentrations.
6. Multiple Pharmacological Properties in One Product A single polyherbal cream can offer anti-inflammatory, analgesic, antimicrobial, antioxidant, and soothing effects simultaneously.
7. Suitable for Long-Term Use Herbal creams are generally safe for prolonged application in chronic conditions like arthritis, joint pain, and dermatitis.
8. Economical and Easily Available Herbs are abundant, low-cost, and accessible, making polyherbal products affordable.
9. Lower Risk of Allergic Reactions Many herbal ingredients are skin-friendly and well tolerated, especially when used in standardized extracts.

Disadvantages Of Polyherbal Creams

1. Variability in Phytochemical Content Plant constituents vary based on season, region, soil, and extraction method, making standardization challenging
2. Possibility of Mild Skin Irritation in Sensitive Individuals Although safer than synthetic creams, some herbal extracts or essential oils may cause irritation or allergies.
3. Stability Issues Herbal compounds can degrade when exposed to light, heat, or moisture, affecting shelf life.
4. Microbial Contamination Risk If preservatives are not properly used, herbal creams can support microbial growth due to their natural ingredients.
5. Slower Onset of Action Compared to Synthetic Drugs Herbal formulations generally work gently and gradually, which may not suit acute or severe conditions.
6. Limited Clinical Evidence Many herbal combinations lack large-scale clinical trials, so their efficacy may sometimes be questioned.

II. LITERATURE VIEW

1. Md. Ikram Ahmed and Syed Safiullah Ghori (et al. 2015) Since ancient times, herbal therapy has been used for many ages. Effective pain and inflammation therapy is necessary in today's world. Investigating novel biomolecules from natural sources is necessary in the hunt for new treatment alternatives. The goal of this study was to assess OFCMT's (oily formulation of camphor, menthol, and thymol) analgesic and anti-inflammatory properties. Essential oils and other compounds found in various plant parts are among the most significant and useful components of herbal plants. Essential oils are substances that are soluble in oil and possess a strong aroma. They are extracted using solvents and enzymatic hydrolysis, and they are separated using water and steam distillation. The naturally cooling substance found in menthol, is frequently utilized in remedies for arthritis, IJCRT2405199 International Journal of Creative Research Thoughts (IJCRT) www.ijcrt.org b794www.ijcrt.org © 2024 IJCRT | Volume 12, Issue 5 May 2024 | ISSN: 2320-2882sports injuries, and other painful ailments. Thymol is a naturally occurring monoterpene phenol derivative known as cymene, which is isomeric with carvacrol. It is extracted as a white, crystalline material with a pleasant, aromatic smell and potent antibacterial qualities from Thymus vulgaris and numerous other types of plants

2. Ghode Shweta P, Chatur Vibhavari M, and Choudhari Pooja (et al. 2019) Cosmetics have been in high demand since antiquity. These days, attention is focused more on Cosmetics that are derived. Because they are so simple to use, skin care products are just as important as cosmetics. It Is preferable to utilize formulations to provide a quicker local effect. The primary goal of the current study was to create a pain salve with paracetamol, a medication utilized in the therapy for the alleviation of mild to moderate pain, including headache, toothache, and backache. When taken as directed, paracetamol is thought to be safe.

3. Bogdanov, Stefan (et al., 2009). In ancient Egypt, beeswax was used to create figures and religious artifacts. Stingless-beeswax figurines were common in areas where stingless bees were Produced in Australia and other South American nations16. An essential component of early seals was beeswax 16. Initially, only pure beeswax was used; resin and color were added later. The first documented tablet made of beeswax in ancient Egypt dates to approximately 1300 BC16. In Europe, writing tablets were still in use well beyond the Middle Ages.

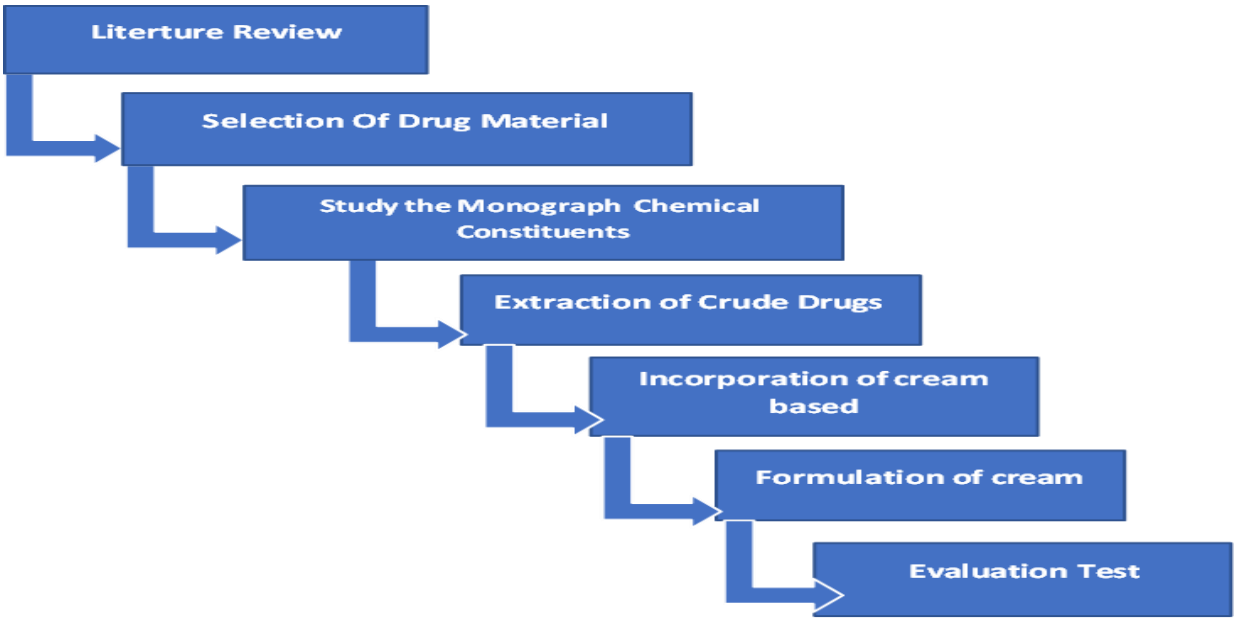
III. AIM & OBJECTIVE

AIM: Formulation and evaluation of polyherbal knee pain relief cream

Objectives:

1. To Formulate a Stable Polyherbal Cream: Develop a well-balanced, multi-ingredient herbal cream for topical application that is physically and chemically stable over a reasonable shelf life.
2. To Evaluate the Anti-inflammatory and Analgesic Efficacy: Assess the formulated cream's ability to significantly reduce inflammation and relieve pain, often through in vitro or in vivo (animal model) studies, comparing it to a base or a standard market product.
3. To Ensure Safety and Acceptability: Perform tests to confirm the cream is non-irritant and safe for human skin application, minimizing potential side effects often associated with synthetic alternatives.

IV. PLAN OF WORK



V. MATERIALS AND METHODS

Cinnamon Oil

Figure. 1

Introduction

Cinnamon is an aromatic bark widely used in herbal formulations for its warming, anti- inflammatory, and analgesic properties. Its essential oil contains cinnamaldehyde, which improves local blood circulation and reduces pain when applied topically. In knee pain formulations, it provides a gentle warming effect that helps ease stiffness and discomfort.

Synonyms: Dalchini Cinnamomum bark Cassia bark (for some species)

Biological Source: Cinnamon is obtained from the dried bark of Cinnamomum zeylanicum (true cinnamon) or Cinnamomum cassia (Chinese cinnamon).

Family: Lauraceae

Chemical Constituents: Volatile oil (major: Cinnamaldehyde, eugenol) Tannins, Mucilage, Coumarins, Resin, Polyphenols.

Uses:

1. Provides a warming analgesic effect, reducing knee and muscle pain. Acts as a strong anti-inflammatory agent.
2. Improves local blood circulation, enhancing relief in stiff joints.
3. Shows antimicrobial and antioxidant activity, protecting skin.

Castor Oil

Figure.2

Synonyms; Castor bean oil, castor oil seed, oleum ricini, ricinus oil, oil of palma christi,cold-drawn castor oil.

Biological Source; Castor oil is the fixed oil obtained by cold expression of the seeds of Ricinus communis Linn., belonging to family Euphorbiaceae.

Chemical Constituents; Castor oil consists of glyceride of ricinoleic acid, isoricinoleic, stearic, and dihydroxy stearic acids. Ricinoleic acid is responsible for laxative property. Castor oil also contains vitamin F. 90% of the fatty acid content is ricinoleic acid. The ricinoleic acid is an 18-carbon acid having a double bond in the 9–10 position and a hydroxyl group on the 12th carbon. This combination of hydroxyl group and unsaturation occurs only in castor oil.

Uses;

1.castor oil packs can help relieve pain and inflammation around the joints and muscles as well as increase circulation in the body.

2. Castor oil is also known for its antifungal, antibacterial, and antiviral properties

Turmeric

Figure.2

Introduction

Turmeric is a well-known medicinal rhizome widely used in Ayurvedic and modern herbal formulations. It is famous for its strong anti-inflammatory, antioxidant, and wound-healing properties. In topical preparations, turmeric helps reduce swelling, joint stiffness, and pain due to the presence of curcuminoids.

Synonyms: Haldi, Curcuma, Indian saffron, Haridra

Biological Source: Turmeric consists of the dried rhizomes of Curcuma longa Linn.

Family: Zingiberaceae (Ginger family)

Chemical Constituents: Curcuminoids (curcumin, demethoxycurcumin, bis- demethoxycurcumin) Volatile oils (ar-turmerone, turmerone, zingiberene) Resins Proteins Polysaccharides

Uses: Strong anti-inflammatory action helps relieve knee pain and swelling. Works as an antioxidant, protecting tissues from oxidative stress. Promotes wound healing and reduces local redness. Provides mild analgesic effect on joints and muscles.

Mint

Figure.4

Introduction

Mint is an aromatic herb used widely in pharmaceutical and cosmetic preparations for its cooling, soothing, and mild analgesic properties. Its leaves contain volatile oils rich in menthol, which produce a characteristic cooling sensation on the skin. In topical pain-relief formulations, mint enhances local circulation, reduces inflammation, and provides immediate calming effect.

Synonyms: Pudina, Peppermint (common variant)

Mentha: Mentha, oil (for its essential oil)

Biological Source: Mint consists of the fresh or dried leaves of Mentha arvensis or Mentha piperita, depending on availability. Both species contain high amounts of menthol in their essential oil.

Family: Lamiaceae (Mint family) Chemical Constituents Volatile oil (major: Menthol, Menthone, Menthyl acetate) Flavonoids (luteolin, hesperidin) Phenolic acids Tannins

Terpenoids (limonene, cineole)

Uses: Provides cooling and soothing effect on joints and muscles. Acts as a mild analgesic and helps reduce knee pain. Improves local blood circulation, aiding faster relief.

Enhances penetration of other herbal actives in the cream. Also offers anti-inflammatory and antimicrobial benefits.

Aloe Vera Gel

Figure.5

Introduction

Aloe vera gel is the mucilaginous, transparent substance obtained from the parenchymatous cells of Aloe leaves. It is widely used in cosmetic, dermatological, and anti-inflammatory formulations due to its soothing, cooling, and wound-healing properties. Gel has natural moisturizing action and helps in reducing inflammation in topical preparations.

Synonyms: Aloe barbadensis gel, Ghritkumari gel, Burn plant gel

Biological Source: Aloe vera gel is obtained from the fresh leaves of Aloe barbadensis Miller, belonging to the genus Aloe.

Family: Liliaceae (sometimes classified under Asphodelaceae in modern taxonomy)

Chemical Constituents: Polysaccharides (mainly acemannan) Vitamins (A, C, E, B12) Enzymes (amylase, catalase, cellulase)

Amino acids Minerals (calcium, magnesium, zinc) Anthraquinones (traces of aloin, emodin) Saponins Sterols (lupeol, campesterol)

Uses:

Acts as anti-inflammatory and provides cooling effect in knee pain formulations. Helps in skin penetration of other active herbal ingredients. Works as a natural moisturizer and softens the applied area. Shows wound-healing and antioxidant activity.

Ginger

Figure.6

Introduction

Ginger is a widely used medicinal rhizome known for its warming, anti-inflammatory, and analgesic properties. It stimulates local blood circulation and reduces muscle and joint stiffness. In topical formulations like knee pain creams, it produces a gentle warming sensation that helps relieve chronic pain and inflammation.

Synonyms: Adrak, Zingiber, Shunthi (dried ginger)

Biological Source: Ginger consists of the fresh or dried rhizomes of Zingiber officinale Roscoe.

Family: Zingiberaceae

Chemical Constituents: Gingerols (main: 6-gingerol) Shogaols Zingerone Essential oils (zingiberene, bisabolene) Resins Starch

Uses: Acts as a warming analgesic, reducing knee pain and stiffness. Strong anti-inflammatory action helpful in arthritis and joint swelling.

Improves local blood circulation, giving faster relief.

Shows antioxidant properties, protecting tissues from damage.

Camphor

Figure.7

Introduction

Camphor is a strongly aromatic, crystalline substance widely used in topical analgesic formulations. It produces a characteristic cooling–warming sensation on the skin, which helps distract pain signals (counter-irritant action). It is known for its anti-inflammatory, analgesic, and mild antiseptic properties, making it a key ingredient in muscle and joint pain relief creams.

Synonyms: Kapur Cinnamomum camphora camphor Spirit of Camphor (for solutions)

Biological Source: Camphor is obtained from the wood of Cinnamomum camphora Linn., a large evergreen tree. (Industrial camphor is also prepared synthetically from turpentine oil.)

Family: Lauraceae

Chemical Constituents Camphor (main ketone) Terpenoids (borneol, camphene) Safrole (traces) Pinene Limonene

Uses:

Acts as a counter-irritant, reducing knee pain by producing cooling–warming sensation. Shows anti-inflammatory action helpful in swollen joints.

Methyl Paraben

Figure.8

Introduction

Methyl paraben is a widely used antimicrobial preservative in pharmaceutical, cosmetic, and food formulations. It prevents the growth of bacteria, yeast, and molds, thereby increasing the shelf life of creams, gels, and lotions. It is stable, safe in low concentrations, and does not affect the texture or appearance of the formulation.

Synonyms: Methyl p-hydroxybenzoate Methyl parahydroxybenzoate Methyl ester of p-hydroxybenzoic acid Nipagin M

Biological Source: It is synthetically produced; not obtained from a natural plant. (Acts as a preservative in herbal formulations.)

Family: Not applicable (synthetic chemical; not a plant product). Chemical Constituents / Chemical Nature Ester of p-hydroxybenzoic acid

Chemical formula: C8H8O3 Part of the “paraben” class of preservatives Shows high antimicrobial activity against molds and yeasts

Uses: Acts as an effective preservative in herbal creams and gels. Prevents microbial contamination during storage. Extends shelf-life of the polyherbal knee pain cream. Stable over a wide pH range and compatible with most herbal ingredients

Preparation Of Herbal Cream

Figure.1

1.Phase A- Gel Base Preparation

Take 30 ml of distilled water in beaker. Sprinkle Carbopol 940 (12 g) slowly with continuous stirring to avoid lumps Let it swell for 30 minutes.

2. phase B - Active ingredients dissolution

In another small beaker, add ethanol (5ml) Dissolve menthol (1 g) and camphor (1 g) completely. Add cinnamon oil (0.5 ml) into this solution.

3. Phase C - Oil mixture

Warm slightly (not above 40 'C) castor oil (7.5 ml) Add turmeric powder (1.5 g) and ginger powder (1.5 g); stir well to form a uniform dispersion. Filter if large particles remain.

4. Phase D - Combine all

To the swollen Carbopol gel, add alove vera gel (25 g) and mix uniformly.

Add the oil dispersion (Phase C) slowly with stirring. Then add Phase B (ethanol mixture) Mix until a homogeneous gel informed.

5. Phase E - Preservation and neutralization

Add methyl paraben (0.10 g) (dissolved in small quantity of warm water)

Adjust pH around 6-6.5 using a few drops of triethanolamine (TEA) if available – this will thicken and stabilize the gel

6. Phase F - Packaging

Transfer the prepared gel into an airtight, wide-mouth jar or collapsible tube.

·Label with date and ingredients. Store in a cool, dark place.

Evalution Test

evaluation of herbal cream was following.

Physical evaluation:

Formulated herbal cream was further evaluated by using the following physical parameters. Color, Odor, Consistency, and state of the formulation [9].

a. Color: The color of the cream was observed by visual examination. The result was shown in table 2.
b. Odor: The odor of cream was found to be characteristics.
c. Consistency: The formulation was examined by rubbing cream on hand manually. The cream having smooth consistency. Cream did not leave greasy substances on skin surface after application.
d. State: The state of cream was examined visually. The cream having a semisolid state. of prepared herbal cream was measured by using digital Ph meter. The solution of cream was prepared by using 100 ml of distilled water and set aside for 2 h. PH was determined in three time for the solution and the average value was calculated.

Spreadability

Spread ability of formulated cream was measured by placing sample in between two slides then

compressed to uniform thickness by placing a definite weight for a definite time. The specified time required to separate the two slides was measured as Spreadability.Lesser the time taken for separation of two slides result shown better Spreadability. Spreadability was calculated by the following Formula.Spreadability (S)=W×L / T
Where S= Spreadability M= Weight tide to the upper slide L= Length of glass slide T= Time taken to separate the slide

Washability
Formulation was applied on the skin and then is extends of washing with water was check on test

Non- irritancy test
Herbal cream formulation was evaluated for the non-irritancy test observation of the sites was done for 24hr 28.

Viscosity
Viscosity of cream was done by using Brooke field viscometer at the temp of 25 °C using spindle no. 63 at 5rpm

Phase separation
The prepared cream was trans ferred in a suitable wide mout h conta iner. Set aside for stor age, the oil phase and aqueous phase separatio n were visualizing after 24hr.

Figure; Process of phase separation

VI. 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 in these formulations may lead to more demands of such formulations which will take them through to the peak in global business.

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