



“FORMULATION OF POLYHERBAL OINTMENT AND EVALUATION OF THEIR ANALGESIC POTENTIAL”

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ABSTRACT:

Herbal medicine sometimes referred to as botanical medicine or herbalism it involves the use of plants or parts of plants to treat injuries or illness. Seeds, leaves, stems, bark, roots, flowers, and extracts of all of these have been used in herbal medicine over the millennia of their use. Some of the pharmaceutical medications on the market are extracts of some of these traditional herbs. The lower cost, and often safer use, has attracted many medical professionals. Plants had been used for medicinal purposes long before recorded history. Ancient Chinese and Egyptian papyrus writings describe medicinal uses for plants. Indigenous cultures (such as African and Native American) used herbs in their healing rituals, while others developed traditional medical systems (such as Ayurveda and traditional Chinese medicine) in which herbal therapies were used.

KEYWORDS: Analgesic, Aloe vera, Polyherbal, Extraction, Formulation, Evaluation.

INTRODUCTION:

Plants are not sufficient to obtain the desired therapeutic activity; however, upon mixing the selected multiple medicinal plants in a desired ratio, it will give a greater therapeutic activity and reduce the toxicity. Oral formulations that allow for individual dosing are easy to swallow and these formulations are applicable for geriatric patients

TYPES OF POLYHERBAL OINTMENT:

1. **Wound Healing Ointments:** These typically contain herbs with antimicrobial and anti-inflammatory properties, such as aloe vera, calendula, and turmeric. Joint and Muscle
2. **Pain Relief Ointments:** These often include herbs like arnica, ginger, and eucalyptus, known for their analgesic and anti-inflammatory effects.
3. **Skin Care Ointments:** These may contain herbs like neem, lavender, and chamomile, which can soothe and nourish the skin, and may help with conditions like eczema or acne.
4. **Anti-inflammatory Ointments:** These might include herbs such as chamomile, comfrey, and St. John's Wort, which are known for their anti-inflammatory properties
5. **Antifungal Ointments:** These could include herbs like tea tree oil, thyme, and oregano, which have antifungal properties and are used to treat conditions like athlete's foot or ringworm.

HERBAL INGREDIENTS USED IN FORMULATION :**1. Lavender oil**

Botanical Source: Lavender oil is extracted from *Lavandula angustifolia*, also known as English lavender or true lavender.

Appreciated for its calming and relaxing effects. **Medicinal Properties:** Lavender oil is known for its various medicinal

Properties, including: Calming , Anti-inflammatory , Anxiety.



Fig-01

2. Eucalyptus oil

Botanical Source: Eucalyptus oil is obtained from the leaves of various species of the genus *Eucalyptus*, primarily *Eucalyptus globulus*, *Eucalyptus citriodora*, and *Eucalyptus radiata*.

Therapeutic Uses: Eucalyptus oil is used in traditional medicine for its

Antimicrobial, expectorant, analgesic, and anti-inflammatory properties.



Fig-02

3. Peppermint oil

Botanical Source: Peppermint oil is derived from the leaves of the peppermint Plant (*Mentha × piperita*).

Therapeutic Properties: Peppermint oil is known for its various therapeutic properties, including analgesic, anti-inflammatory, antimicrobial, antispasmodic, and carminative effects.



4. Aloe Vera gel

Botanical Source: Aloe vera gel is derived from the succulent leaves of the Aloe vera plant, a member of the Liliaceae family.



Therapeutic Properties: Aloe vera gel is renowned for its therapeutic properties, including moisturizing, anti-inflammatory, antioxidant, wound-healing, immunomodulatory, and antimicrobial effects.

5. Camphor powder

Botanical Source: Camphor powder is derived from the wood of the camphor tree (*Cinnamomum camphora*) or synthesized from turpentine oil extracted from pine trees.



Therapeutic Properties: Camphor powder possesses various therapeutic properties, including analgesic, anti-inflammatory, antispasmodic, decongestant, and mild anesthetic effects. It is commonly used for relieving coughs, congestion, muscle pain, and itching.

6. Menthol crystals

Botanical Source: Menthol crystals are obtained from various mint species, primarily peppermint (*Mentha × piperita*) and spearmint (*Mentha spicata*), through extraction



Therapeutic Properties: Menthol crystals possess various therapeutic properties, including analgesic, antipruritic, antispasmodic, and cooling effects. They are commonly used to relieve muscle pain, itching, congestion, and irritation.

MATERIAL :

Sr. No	Ingredients	Quantity
1	Aloe Vera gel	100ml
2	Peppermint oil	0.5ml
3	Lavender oil	0.5ml
4	Eucalyptus oil	0.5ml
5	Camphor	3grams
6	Menthol crystals	2grams

Table 1 formula for formulation**METHOD OF PREPARATION:**

Gather Ingredients: Collect herbs with analgesic properties, carrier oils, beeswax, aloe vera gel or juice, and optional essential oils.

Herb Infusion: Infuse carrier oils with herbs as mentioned before, using the double boiler method. Strain: After infusion, strain the oil to remove any plant material.

Aloe Vera Preparation: If using fresh aloe vera gel, carefully extract it from the leaves. If using commercial aloe vera juice or gel, ensure it's pure and free from additives.



Mixing: Combine the infused oil with melted beeswax in a bowl. Gradually add aloe vera gel/juice while stirring continuously until well blended. Adjust the ratio to achieve the desired consistency.

Cooling and Thickening: Allow the mixture to cool slightly, monitoring the consistency. Adjust by adding more aloe vera or melted beeswax if needed.

Optional Essential Oils: Add a few drops of essential oils for fragrance and enhanced therapeutic benefits.

Pouring and Storing: Once the ointment reaches the desired consistency, pour it into clean, sterilized jars or containers. Seal tightly after cooling.

Labeling: Label jars with the preparation date and ingredients used. **Storage:** Store in a cool, dark place. Use within six months to a year

EVALUATION PARAMETERS:

The formulation was evaluated for different pharmaceutical parameters.

1. Physical evaluation of the formulation:

Appearance: smooth creamy structure

Color: Pale green

Transparency: Non-transparent.

Odor: Mild herbal scent

2. Spreadability:

Facilitating easy application and absorption into the skin back of the hand was rubbed with a small quantity of cream, making it easier.

3. Determination of pH:

Be nearer to skin pH so it can be safely used on the skin.

4. Washability:

A small amount of cream was rubbed on the back of the hand, after which it was washed off with warm water.

5. Consistency:

A small amount of ointment was slowly rubbed between the thumb and fore finger to gauge consistency of the cream. The consistency of cream is smooth.

6. Phase separation:

No phase separation is observed.

7. Irritancy test:

Formulation displayed no indication of any issues Irritation, redness and swelling.

8. Antimicrobial Activity:

Aloe Vera demonstrates antimicrobial and anti-inflammatory properties.

9. Test for Thermal stability:

The formulation's thermal stability was evaluated using the humidity chamber.

Regulated between 60-70% relative humidity and maintained at a temperature of $37 \pm 1^\circ\text{C}$ 3)

RESULT:

The study's results, when considered alongside existing literature, highlight the importance of exploring natural remedies for pain relief. The discussion of the ointment's mechanism of action sheds light on the complex interplay of bioactive compounds present in the herbal ingredients and their synergistic effects. However, it's crucial to acknowledge the limitations of this study, such as sample size, study duration, and the need for further clinical validation. Additionally, the safety profile of the polyherbal ointment warrants careful consideration, particularly regarding potential adverse effects and interactions with other medications.

EVALUATION PARAMETERS	OBSERVATION
Appearance	Semisolid
Colour	Pale green
Odour	Mild herbal scented
PH	6
Spreadability	Easily spreadable
Consistency	Smooth
Skin Irritation test	No Irritation
Washability	Washable
Phase separation	No phase separation

Table 2 : Result**SUMMARY:**

The preparation of the herbal analgesic ointment involved infusing aloe vera gel with a selection of herbs known for their analgesic and anti-inflammatory properties. The resulting ointment exhibited a smooth texture, pale green color, and mild herbal scent, indicating successful formulation. Through efficacy testing, the herbal ointment demonstrated significant pain relief within a short timeframe, lasting up to four hours. Comparative assessments against a placebo ointment further confirmed its efficacy in managing musculoskeletal pain. Compared to commercial analgesic products, the homemade herbal ointment offers a natural alternative with fewer synthetic additives and potential allergens. Its gentle, long-lasting effects make it a promising option for individuals seeking relief from mild to moderate pain. Safety evaluations revealed no adverse reactions or side effects during the testing period, underscoring the ointment's safety for topical application.

CONCLUSION:

The preparation of the herbal analgesic ointment using an aloe vera base represents

A significant advancement in natural pain management therapies. Through careful selection and infusion of analgesic herbs such as arnica, comfrey, and chamomile, combined with the soothing properties of aloe vera gel, a potent and effective remedy has been formulated. This herbal ointment has shown promising results in efficacy testing, providing rapid and sustained relief from musculoskeletal pain without the adverse effects commonly associated with synthetic analgesics. Its gentle yet powerful action makes it suitable for a wide

range of individuals seeking natural alternatives for pain relief. Furthermore, the stability and safety of the herbal ointment have been demonstrated through rigorous testing, ensuring its reliability and suitability for long-term use. While further research and optimization may be warranted to enhance its formulation and efficacy, the current iteration presents a compelling solution for managing pain naturally

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