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FORMULAION & EVALUATION OF HERBEL PAIN BALM CONTAINING MENTHOL EXTRACT.

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ABSTRACT :

Current life is stressful & tension headache are one of the result of stress. pain balm is dermal drug delivery product, pain balm formulation are preferably used so as to get the faster blocal effect .

Menthol (also known as peppermint oil) is a cyclic monoterpen which is found as greater constituent in the essential oil of menthe species .its use in dermatology is immanent where it is frequently part of topical analgesic, anti- pyretic, antiseptic , & cooling formulation.

In contravation of of its widespread use it was only recently that the mechanism by which menthol elisitnthe same cool sensation as low temperature was elucided upon , with the discovery of the TRPM 8 receptor . even if almost 5 year have passed since the receptor , many dermatologist are still unware of menthol underlying targets .

By understanding the formulation & evaluation of herbal pain balm research can shown a good effect of herbal pain balm as compaire with marketed preparation . in this pain baln we use all the ingred are herb which is very potent & effective & there is no side effect .The herb use such as menthol, camphor, petrollium jelly, eucalyptus oil
, bees wax , menthol, castor oil

Keyword: Herbal pain balm, menthol , antiinflamatory action , eucalyptus oil, camphor, antioxidant property

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Introduction:-

The pain balm works on the counter irritant principal the where the instead of relieving the pain, the pain sensation is suppressed by causing the irritation to the point where formulation has been applied. The balm in common sense is defined as semisolid formulation (generally having medicament) and which is to be applied externally. Pain balm is such formulation that is intended to be used for the relief of mild to moderate rate pain.

In common region common cold it seen the symptoms of nose getting block with mucous. For the common cold is arising to exposure to the environmental factor such as cold, dryness, dampness. By this our body affected by joint pain, headache, toothache etc. Many Scientists discovered many drugs but the preset invention shows a different category herbal based balm which is used for the reduction of pain in in-vitro.

Menthol is a natural compound of plant origin known to produce coolsensation.

Menthol, the cooling natural product of peppermint, is widely used preparations for pain relief in sport injuries, arthritis and other painful conditions.

Camphor, a natural product derived from the wood of the tree cinnamomumcamphora, has a long history of use antiseptic, analgesic, antipurutic counter irritant and rubefacient.

importance of Menthol is very soluble in alcohol, chloroform, ether and hexane and slightly soluble in water. Menthol is an alcohol that is found in mint oils and similar to peppermint, has a refreshing odour, white crystalline structure and cooling properties. Chemical formulaof menthol C10H20O and molecular weight is 156.37gmol_1. Menthol is found in many topical pain relief medications due to its counter irritant and local anaesthetic properties.

The mechanism by which menthol is able to impart a cooling sensation when applied topically to the skin is well understood. Menthol in over the concentration has an exellance safety profile.. For the pharmaceutical purpose beeswax are used drugs,pills, capsules and ointments as consistency , binding agent, time release mechanism and carrier of drug.

Material & Method Composition :

Formula :

Sr. no.	material	uses	quntity
1	menthol	Conter irritant	10 Gm
2	comphor	Relieve cough	0. 12Gm
3	petrollium jelly	Moisturizer, relieve dry skin & healing	10 G
4	beeswax	base	6.6 Gm
5	Methyl salicylate	analgesis	10 ML
6	Eucalyptusoil	Pain relief	20 Ml

Table No 1: Formulation of Pain balm

Drug profile:

A .Menthol :

Fig : menthol

Menthol creates a cooling sensation on the skin. It helps numb pain receptors, alleviating pain and reducing inflammation. Menthol is often used in cooling pain balms .

- **Scientific Name:** *Hexahydrothymol.*
- **Synonym:** Peppermint camphor.
- **Family:** Lamiaceae.
- **Chemical constituents:** Menthol (40.7%), Menthone (23.4%), menthyl acetate, 1,8cineole limonine, beta pinene, a beta-caryophllene

- **Uses:** Reduces spasm and pain caused by endoscopy; In migraine headache; To treatnausea

B. camphor:

Fig : Campor

- **Scientific name:** Cinnamomum camphora.
- **Synonym:** Alcanfor.
- **Family:** Lauraceae.
- **Chemical constituents:** D-camphor (51.3%), 1,8-cineole(4.3%), and alpha-terpineol.
- **Uses:**

1. Provide relief from cold cough, chest congestion, bronchitis and asthma.
2. Improves blood circulation and help to curb muscular and joint aches.
3. Powerful analgesic oil that produces a cooling sensation to numb pain and awarming sensation to increase circulation
4. Verastile anti-inflammatory and antifungal compounds that reduces pain and irritation

C. Bees wax :

Fig: Bees wax

- **Scientific name:** Ceraalba.
- **Synonym:** Yellow wax.
- **Family:** Apidea.
- **Chemical constituents:** Myricylpalmitate (80%), free cerotic acid (15%), melissic acid cerolein.

Uses: Used as antibacterial, antifungal; It has anti-inflammatory and anti-allergicproperties.

D .Petrollyum jelly :

Fig : Petrollium Jelly

Petroleum jelly is a thick, waxy paste that many people use as a skin care product and treatment for minor cuts and burns. Other names for petroleum jelly include petrolatum and Vaseline, a common brand name People use petroleum jelly for diaper rash, as a moisturizer, to treat skin conditions such as ecezema & as lubricant.

E .Eucalyptus oil :

Fig:Eucalyptus oil

- **Scientific name:** Eucalyptus globules,
- **Synonym:** Lemon scented gum
- **Family:** Myrtaceae.
- **Uses:**

1. Relieves stuff nose.
2. Eases sore muscle and joint pain.
3. Clears respiratory complaints.
4. Reduces stress.
5. Disinfects wounds and cut.

Equipment : & Material:

Sr . no.	Equipment
1	Weiging balance
2	Morter & pestle
3	Clavenger apparatus
4	Beaker
5	Burner

Table NO :4

Sr. no.	Material
1	Menthol
2	Comphor
3	Methyl salicylate
4	Beeswax
5	Eucalyptus oil
6	Petrollyum jelly

Table NO :3

Method of prepration :

- Add 10 Gm of petrollium jelly place in hot plate & boil until it is dissolved.
- Add 10 Ml methyl salicylate & boil .
- In petrollyum jelly add 10 Gm beeswax stir & boil upto dissolve .
- After that mix 20 gm of menthol preparation in above solution &
- dissolve 20 ml eucalyptus oil.
- Boil upto dissolve.
- Add ingredient completely dissolve & turn into solution.

Benefits

1. AFECTED AREA, OFFERING FOCUSED PAIN MANAGEMENT.
2. NON-INVASIVE: PAIN BALMS ARE APPLIED TOPICALLY, AVOIDING THE NEED FOR INGESTING
3. MEDICATIONS ORALLY, WHICH CAN BE ADVANTAGEOUS FOR INDIVIDUALS WHO PREFER NONINVASIVE
4. QUICK ACTION: MANY PAIN BALMS WORK RELATIVELY QUICKLY, PROVIDING FAST RELIEF TO
5. DISCOMFORT AND PAIN.
6. CONVENIENCE: PAIN BALMS ARE PORTABLE AND EASY TO CARRY, MAKING THEM CONVENIENT FOR
7. VARIETY OF FORMULATIONS: THERE ARE VARIOUS TYPES OF PAIN BALMS WITH DIFFERENT
8. INGREDIENTS, CATERING TO INDIVIDUAL PREFERENCES ANDSENSITIVITIES.
9. MINIMAL SYSTEMIC EFFECTS: UNLIKE ORAL MEDICATIONS, PAIN BALMS TYPICALLY HAVE

Physical Parameter :

Sr. No.	Organoleptic characteristic	Herbal balm	Marketed balm
1	Category	Pain balm	Pain balm
2	Colour	Mint green	White
3	Odour	Strong aromatic	Fragnent
4	Appearance	Smooth	Good
5	State	Semi solid	Semi solid

Evalution Test :

Sr. No.	Parameter	Result
1	PH	6.7
2	Spreadability	Easily spreadable
3	Phase inversion	No phase inversion
4	Washability	Easily washable
5	Irritation	No irritation

Extraction :.

1. Steam Distillation :

- Required quantity of air dried mentha plant is charged into stainlesssteel still having perforated bottom.

- The steam under pressure is generated with the help boiler and steam is passed through the drug.
- The mixture vapour (water and volatile oil) are passed through the condenser where vapour is cooled and back to liquid form.
- The mentha oil is collected in separating can. Mentha oil is floated on top of the water due to lighter than water.
- The oil is then decanted and filtered.

2.Hydro-distillation:

- Required quantity of coarse powder leaves of Mentha piperita.
- The peppermint oil is extracted by hydrodistillation method by usingclevenger apparatus.
- The oil is separated from water and allow to cooling. After cooling crystals of (-) menthol will separate out.
- The crystals are collected by centrifugation and re-crystallized the menthol by acetone or any other low boiling point solvent.

Result & Discussion

In the presence of study, the pain balm of menthol was fomulated by using various excipients. The balm evaluated for the physical parameters and was found to be satisfactory in terms of appearance and texture. It was easily spreadable withfingers without any roughness to touch. The smell of the balm was found to be characteristics.

The balm was dense with the optimized melting point. In general, oral or topical antibiotic formulation is used for the treatment of skin diseases. Traditionalmedicinal and aromatic plants are interesting and explore its various bioactive natural organic compounds for various treatments.

It was stable during storage.Physicochemical properties of ointment were studied which shows satisfactory results for extrudability, washability, spreadability, solubility, loss on drying etc. Stability study was also studied at differenttemperature condition . Not any change is observed in spreading ability, diffusion study as well as irritant effect.

Conclusion:

In conclusion, pain balms represent a convenient and localized approach to managing minor pain and discomfort. These topical formulations offer several advantages, including their direct application to the site of pain, relatively fast relief, and minimized systemic effects compared to oral medications. Pain balms often contain ingredients such as menthol, camphor, and essential oils that create cooling or warming sensations,providing immediate comfort.

While pain balms are effective for targeted relief of localized pain, they may have some limitations. Skin irritation or allergies can occur, particularly in individuals with sensitive skin. Additionally, pain balms might not be as suitable for addressing more severe or widespread pain conditions.

Compared to other pain relief options like oral medications and topical creams/gels, pain balms offer a unique proposition. Oral medications provide systemic relief throughout thebody, but they may have more potential for systemic side effects and interactions. On the other hand, topical creams/gels offer localized relief through skin absorption, and while they can effectively address localized pain, they may vary in effectiveness based on skin type and formulation.

Ultimately, the choice of using a pain balm, oral medication, or topical cream/gel depends on factors such as the type and severity of pain, personal preferences, and individual medical considerations. Consulting a healthcare professional is advised before making a decision, as they can provide personalized guidance on the most suitable pain relief option based on individual needs. Pain balms, in their targeted approach to relieving minor pain, serve as a

valuable addition to the array of pain management choices available to individuals seeking comfort and relief.

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