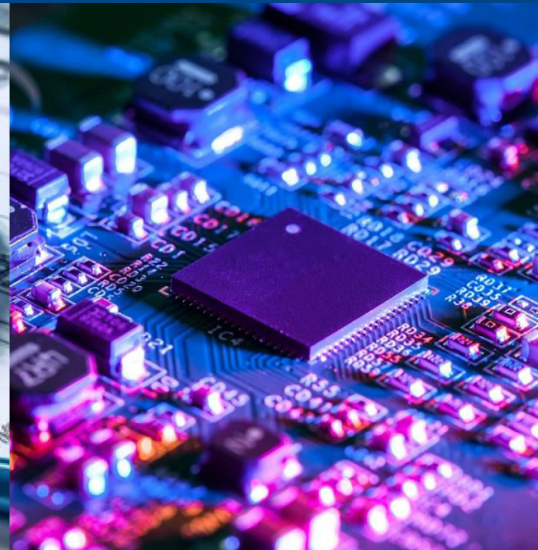
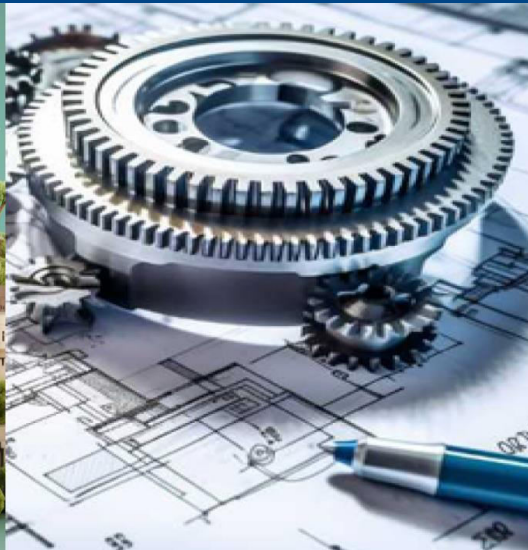
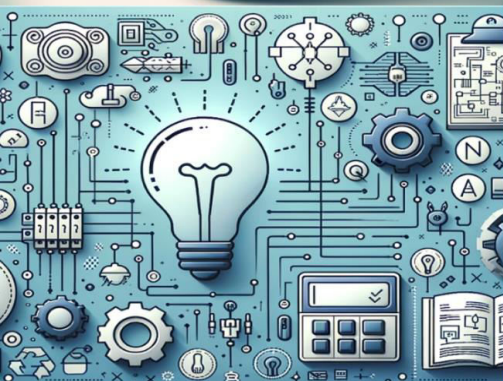




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Formulation and Evaluation of Herbal Pain Relief Oil for the Management of Sciatica

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ABSTRACT: The formulation and evaluation of herbal pain relief oils have gained significant attention in recent years due to the growing preference for natural and alternative therapies. This article explores the development of a herbal pain relief oil composed of ginger, turmeric, castor oil, and mustard oil. Ginger, known for its anti-inflammatory properties, and turmeric, celebrated for its analgesic and antioxidant effects, form the foundation of this oil. Castor oil, with its deep penetrating abilities, enhances absorption, while mustard oil provides warmth and promotes blood circulation. The combination of these ingredients creates a synergistic effect that offers relief from muscle pain, joint discomfort, and inflammation. Over time, the formulation has evolved, incorporating advanced extraction techniques and a deeper understanding of the therapeutic potential of each ingredient. This article discusses the historical use of these herbs, the scientific rationale behind their combination, and the modern advancements in their formulation, highlighting the growing role of herbal remedies in pain management.

KEYWORDS: Ginger, turmeric, castor oil, mustard oil, peppermint oil

I. INTRODUCTION

Herbal pain relief oils are a natural and effective alternative to conventional pain relief treatments, harnessing the therapeutic properties of various plant-based ingredients, and promote healing. Common ingredients such as ginger, turmeric, peppermint, mustard, and castor oil form the backbone of many herbal pain relief formulas., joint pain, and general aches and pains. For example, ginger oil contains gingerol, an active compound known for its antiinflammatory and analgesic properties. It helps reduce joint swelling, improve circulation, and relieve muscle stiffness. Similarly, turmeric oil, with its powerful active compound curcumin, helps to reduce inflammation and pain associated with inflammatory conditions like osteoarthritis and rheumatoid arthritis. Peppermint oil, with its high menthol Sciatica represents a debilitating condition characterized by pain or paresthesia's within the sciatic nerve distribution or an associated lumbosacral nerve root. A prevalent misconception often mislabels any low back pain or radicular leg pain as sciatica. Sciatica entails pain directly resulting from sciatic nerve or root pathology. Comprising nerve roots from L4 to S3, the sciatic nerve, with a diameter of up to 2 cm, stands as the body's largest nerve. Pain associated with sciatica is exacerbated by lumbar spine flexion, twisting, bending, or coughing.

The sciatic nerve plays a pivotal role, providing direct motor function to the hamstrings and lower extremity adductors and indirect motor function to the calf muscles, anterior lower leg muscles, and select intrinsic foot muscles. Furthermore, its terminal branches indirectly contribute to sensation in the posterior and lateral lower leg and the plantar aspect of the foot.

Importantly, sciatica predominantly arises from an inflammatory condition, leading to sciatic nerve irritation. Conversely, direct nerve compression results in more pronounced motor dysfunction, necessitating a thorough and prompt diagnostic evaluation.

II. MATERIAL AND METHOD

2.1 Plant Materials

Ginger, Turmeric, Castor oil, Mustard oil are taken from the local market and peppermint oil are taken from college laboratory



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2.2 Methodology

2.2.1 Pre formulation study

A) Phytochemical screening

- **Test for Alkaloid:** About 10 mg of extract was taken and few drops of Wagner's reagent was added and the formation of a dish brown precipitate indicates the presence of alkaloids
- **Test for Flavonoids:** 10mg of extract was taken and few drop of 10% lead acetate solution was added. Appearance of yelles colour precipitate indicates the presence of flavonoids.
- **Test for Tannin:** To 5 mg of the sample, a few drops of 0.1%Fenic chloride were added. The presence of a brown green or blue black colour indicated that the material possessed tannins
- **Test for Saponin:** 0.5 mg of extract was diluted with 20 ml distilled water and shaken well in a used cylinder for 15 min. The fume of foam to a length of indicated the presence of saponin.
- **Test for Carbohydrates:** 5 ml of Fehling's solution was added and 0.5mg of extract and boiled in a water bath. The formation of yellow or red precipitate Indicates the presence of carbohydrates

2.2.2 Formulation of herbal oil

Accurately weigh all the ingredients and dried powder, Mix mustard oil, castor oil, uniformly. After that mixing add crushed turmeric. Then heat until the colour changes, To the oil mixture, add ginger oil, stir well, Heat the oil and herbs over low heat for 10-15 min. Avoid boiling of oil; gentle heat will help the herbs infuse without breaking down too much. Stir occasionally and ensure that the herbs do not burn. In the last stages, after heating leave it for cooling and then add peppermint oil in the oil mixture. After mixing, whole preparation filter the oil to get rid of all the solid particles using filter paper.To maintain its qualities, pour the squeezed oil into a dark glass bottle. Store the oil somewhere at cold and dark place.

S.NO	Ingredient	F 1	F 2	F 3
1	Ginger	8	8	7
2	Turmeric	3	3	-
3	Mustard oil	10	10	10
4	Castor oil	8	8	10
5	Peppermint oil	2	2	3

Table No. 1 formulation of herbal oil

2.2.3 Evaluation parameters of herbal oil

A) **organoleptic property:** In this test the herbal oil was observed for their colour and odor

B) Determination of ph

1ml oil was taken and dispersed in 50ml of distilled water and then ph was measured by using digital ph meter and value was noted

C) Determination of Viscosity

Thoroughly clean the Ostwald viscometer with warm chromic acid and if necessary, used an organic solvent such as acetone. Mount viscometer in vertical position on a suitable stand. Fill water in dry viscometer up to mark G, Count time required, in second for water to flow from mark A to mark Repeat step 3 at least 3 times to obtained accurate reading.



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Rinse viscometer with test liquid and then fill it up to mark A, find out the time required for liquid to flow to mark B, Determination of densities of liquid as mentioned in density determination

$$\text{Viscosity\%} = \text{Density of liquid} \times \text{flow time for liquid} \times \text{water viscosity}$$

III. RESULT AND DISCUSSION

A) Phytochemical screening

S.No	Test	Result
1.	Alkaloids	+
2.	Flavonoids	—
3.	Tannins	+
4.	Glycoside	+
5.	Protein	+

Table No.2.Phytochemical Screening

B) Organoleptic Property

S.NO	Parameter	F1	F2	F3
1	Colour	Light brown	Dark yellow	Dark yellow
2	Odour	Unpleasant	Unpleasant	Unpleasant

Table No.3. Organoleptic Property

C) Determination of ph and viscosity

Features	F1	F2	F3
PH	7	6	5
Viscosity	12 Min	11 Min	10 Min

Table No.4. Determination Of Ph & Viscosity



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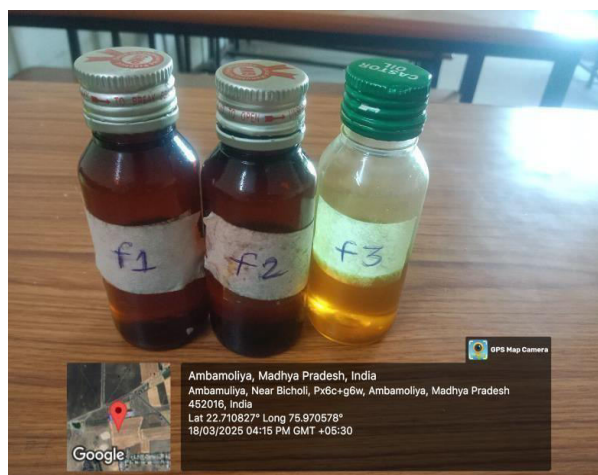


Fig No. 1 Herbal Pain Relief Oil

IV. CONCLUSION

Anti-inflammatory oils offer a natural, effective way to manage inflammation, whether used topically or ingested in moderation. They can be part of a holistic approach to health, alongside proper diet, exercise, and medical treatments. While these oils can alleviate mild to moderate inflammation, it's important to consult a healthcare provider for serious or chronic inflammatory conditions. Additionally, users should be aware of potential allergies or skin sensitivities when using certain oils. While these oils can be a valuable addition to your health regimen, it is important to use them properly and consult with a healthcare provider, especially for chronic or severe inflammation. Additionally, it is crucial to be mindful of possible allergic reactions or sensitivities when using these oils. In summary, anti-inflammatory oils can complement traditional treatments and help improve quality of life when used responsibly. In conclusion, herbal pain relief oils offer a natural, effective, and holistic approach to managing pain and inflammation. By utilizing plant-based ingredients such as menthol, eucalyptus, lavender, ginger, camphor, and turmeric, these oils provide targeted relief for various types of pain, including joint pain, muscle aches, arthritis, and headaches.

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