



Formulation and Evaluation Herbal Pain Relief Oil

Saloni Sen*, Nripen Prakash Khare and Satyaendra Shrivastava

Parijat College of Pharmacy, Indore (M.P.) - India

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Abstract

A variety of herbs and essential oils are used in pain, inflammation, arthritis to improve circulation & are volatile in nature can easily penetrate the skin. The herbal pain relief oil is a perfect mixture of oils like eucalyptus oil and camphor oil and herbs like turmeric and nirgundi. This oil has to be applied topically and it does not give any side effects or irritating effects. Herbal oil is prepared by decoction method and it is used for long time. The preformulation studies are organoleptic properties, flow property, phytochemical screening, swelling index, foaming index, ash value and viscosity were evaluated to understand the characteristics of herbal ingredients. The herbal pain relief oil is formulated as a natural alternative for managing pain effectively. This study presents the formulation and evaluation of herbal pain relief oil aimed for providing natural relief from various types of pain.

Key words: Turmeric, Nirgundi, Eucalyptus oil and Camphor oil.

Introduction

Introducing our revolutionary herbal pain relief oil, is a natural solution for alleviating discomfort and promoting wellness. Oil is a liquid dosage form. These liquid dosage form are intended for external use. Aromatic plants had been used ancient times for their preservative and medicinal properties, and to impart aroma and flavor to food. Ayurveda is the dominating treatment method widely practiced, used and followed in different parts of India along with world. Since ancient times, essential oils are recognized for their medicinal value and they are very interesting and powerful natural plant products. This herbal oil is specially formulated for muscular pain and joint pain. Formulated herbal oil using Turmeric, Nirgundi, eucalyptus oil and Camphor oil. Researchers keep on searching for new dimensions in treatments of variety health problems and pain is one amongst them, 'An unpleasant sensory and emotional experience that associated with, or resembling that associated with, actual or potential tissue damage'. Muscle

cramps are one of the effect that come with pin therefore to improve muscle is also becomes a key factor while treating it. It has anti-inflammatory properties that helps to relief pain, restore mobility and repair tissue and joints. Pain relief oil has powerful natural activities while relief bodily pain, joint pain, muscle stiffness, sprain and spasm, swelling of joint and muscle.

The mechanism of action of herbal pain can very depending on its ingredients, but generally, it works by penetrating the skin to deliver natural compounds that have analgesic, anti-inflammatory, or soothing properties. These compounds may interact with pain receptors, reduce inflammation, increase blood flow to the affected area, and promote relaxation of muscles, providing relief from pain and discomfort. Examples of such compounds include turmeric and nirgundi and essential oils like eucalyptus and camphor.

***Corresponding Author**

Ideal properties of herbal pain relief oil include:

Natural ingredients: Utilizes plant-based extracts such as herbs, essential oils, and botanicals known for their analgesic properties.

Fast-Acting: Provides quick relief from pain upon application to the affected area.

Non-Greasy: Absorbs easily into the skin without leaving a greasy or sticky residue.

Long-Lasting: Offers sustained pain relief over an extended period, reducing the need for frequent reapplication.

Anti-inflammatory: Contains ingredient with anti-inflammatory properties to help reduce swelling and inflammation associated with pain.

Non-Toxic: Free from harmful chemicals, artificial fragrances, and synthetic additives commonly found in conventional pain relief products.

Material and Methods

Material and Methods

Material

Active herbal ingredient

- Turmeric
- Nirgundi
- Eucalyptus oil
- Camphor oil

Drug and Excipient Profile

Turmeric:-

Biological name:- *Curcuma longa*.

Family :-Zingiberaceae

Biological source:-Polyphenol curcumin

Chemical constituent:-Curcuminoids

Uses:- 1. Inflammation

2. Arthritis relief

3.Improve skin health .



Nirgundi :-



Biological name :-*Vitexnegundolinn*

Family :-Verbenaceae

Biological source :- Dried leaves of *VitexNegundo*.

Chemical constituent :-Flavanoids, volatile oil, lignin, diterpenes.

Uses :-1. Management of pain

2. Inflammation

3. Rheumatoid.

Camphor:-



Biological name :-*Cinnamomumcamphora*

Family :-Lauraceae

Biological source :-Natural bhimseni camphor is obtained by distilling the bark and the wood of the camphor tree.

Chemical constituent :- Linalool, cineole

Uses:- 1.Relieve pain

2. Anti-fungal

3.Anti-bacterial.

Eucalyptus:-

Biological name :- Eucalyptus globules labill
Family :-Myrtaceae
Biological source :- Obtained by the distillation of fresh leaves of Eucalyptus globulus.
Chemical constituent :- Eucalyptol
Uses:- 1. Arthritis
2. Anti- inflammatory.



Method

Collection of Material

All the ingredient are collected from local market and collected from college.

Preformulation Studies: Preformulation is the stage of development during which the physicochemical properties of the drug substance are characterised and established.

Flow property of powder: The flow of a powder is a complex phenomenon that is sensitive to properties of the powder itself and external factors such as humidity. Within the powder, many parameters affect flow properties. The main influencing factors are particle size and particle shape and shape and width of particle size distribution.

- Bulk density
- Tapped density
- Angle of repose
- Hauser's ratio

Phytochemical screening of drugs:

Phytochemical screening is identification of different classes of phytoconstituents present in various parts of a plant. Phytochemicals are the chemicals that are present naturally in plants.

- Alkaloid test
- Flavonoid test
- Protein test

Ash value: Total Ash value Weighed accurately 2 g of air dried roots powder in a tarred platinum or silica dish and incinerated at a temperature not exceeding 450°C until free from carbon, cooled and weighed. When a carbon free ash cannot be obtained in this way exhausted the charred mass with hot water, collected the residue on an ash less filter paper, incinerated the residue and filter paper until the ash was white or nearly so, added the filtrate, evaporated to dryness and ignited at a temperature not exceeding 450°C. Calculate the percentage of ash with reference to the air dried drug.

Total Ash Value:-Used to determine quality and purity of crude drug and to establish the identity of it. Weigh 2gm of powder drug into the crucible. Ignite sample on burner (flame) until all the carbon is burned off. Cool it and weigh the ash. Calculate the percentage of total ash with references to the air dried sample of crude drug

- a) Weight of the empty dish = x
- b) Weight of the drug taken = y
- c) Weight of the dish with ash = z
- d) Weight of the ash = (z - x)

Total ash = $100(z-x)$

Swelling Index:- 1gm of coarsely powdered drug was taken in 25ml of glass stoppered measuring cylinder. 25ml water was added and the mean value of initial height of drug in the cylinder was determined. Shake the mixture thoroughly at interval of every 10 minutes for 1hour. Allowed to stand for 3 hours at room temperature. The mean value of final height of drug in the cylinder was determined.

Foaming Index:- 1gm of the plant material to a coarse powder weighed accurately and transferred to a 500 ml conical flask containing 100ml boiling water. Maintained at moderate boiling for 30 minutes. Cooled and filtered in to a 100 ml volumetric flask and add a sufficient water through the filter to dilute the volume to 100 ml. Placed the above decoction in to 10 stoppered test tubes in a series of successive portions of 1, 2, 3, 4 up to 10 ml and adjusted the volume of the liquid in each tube with water to 10 ml. Stoppered the tubes and shake them in a lengthwise motion for 15 seconds, 2 frequencies per seconds. Allowed to stand for 15 minutes and measure the height of the foam. If the height of foam was found in every tube is less than 1cm, the foaming index is less

than 100. If in any tubes a height of foam was of 1 cm is measured, the dilution of the plant material in this tube (a) is the index sought. If the height of the foam is more than 1 cm. in every tube, the foaming index is over 1000. In this case the determination was needs to be made on a new series of dilution of the decoction in order to obtain.

Foaming Index = $1000/a$

Preparation of oil

Every herb selected with good quality by making sure its cleanness. All herbs powder add in 250 ml of water and kept mixture to boil for 2 hours with stirring. After 2 hours of boiling mixture was filtered and filtrate collected in neat and clean vessel. Now, the 100ml of eucalyptus oil and camphor oil take in beaker than heating for 20-30 min. After 30 min. the mixture became slight warm so filtrate of herb was added in it. This oil boiled for 1 hour to evaporate all water content in it and filtered in bottle.

Preparation of Formulation

S.No.	Ingredient	F1	F2	F3
1.	Turmeric	15 gm	20 gm	25 gm
2.	Nirgundi	20 gm	25 gm	30 gm
3.	Eucalyptus oil	5 ml	8 ml	10 ml
4.	Camphor oil	2 ml	5 ml	8 ml



Fig. 1: Prepared Formulation

Result and Discussion

The results and discussion of a study on herbal pain relief oil would typically involve analyzing the effectiveness of the oil in alleviating pain, comparing it to existing treatments or placebos, discussing any observed side effects and exploring potential mechanism of action.

Physical evaluation

On the basis of colour test, PRO-I shows dark yellow, PRO-II shows dark yellow & PRO-III shows light brown. Odor of all three formulation PRO-I, PRO-II & PRO-III shows characteristics odour. The appearance of all the three formulation was transparent. The state of all three formulation was liquid.

Table 1: Observation table for physical evaluation

Parameters	PRO-I	PRO-II	PRO-III
Colour	Dark yellow	Dark yellow	Light brown
Odor	Unpleasant	Unpleasant	Unpleasant
Appearance	Transparent	Transparent	Transparent
State	Liquid	Liquid	Liquid

Spreadability

The spreadability of PRO-I, PRO-II & PRO-III is good. According to the results formulation F3 showed better spreadability as compared to other formulation. The result of all these formulation has shown in the table given below.

Table 2: Observation table for spreadability

Formulation	Spreadability
PRO-I	1 min.
PRO-II	2 min.
PRO-III	3 min.

Skin irritancy

The formulation show no redness, edema, inflammation and irritation during irritancy studies. All the three formulation shows no irritant effect. The result of all this formulations has shown in the table given below.

Table 3: Observation table for irritancy

Parameters	PRO-I	PRO-II	PRO-III
Irritancy	Nil	Nil	Nil
Edema	Nil	Nil	Nil
Erythema	Nil	Nil	Nil

Consistency

The consistency of PRO-I, PRO-II & PRO-III is good. According to the results formulation F3 showed better consistency as compared to other formulation. The result of all three formulations has shown in the table given below.

Table 4: Observation table for consistency

Formulation	Consistency
PRO-I	Average
PRO-II	Average
PRO-III	Good

Homogeneity

The oil was found to be homogenous. Any sign of homogeneity was not found. The result of all this formulations has shown in the table given below.

Table 5: Observation table for homogeneity

Formulation	Homogeneity
PRO-I	Good
PRO-II	Good
PRO-III	Excellent

Results of evaluation parameters: Evaluation parameters are specific criteria or measures used to assess the performance, process, activity, quality, or effectiveness of a herbal pain relief oil.

Table 6: The results of evaluation parameter

Evaluation parameter	PRO-I	PRO-II	PRO-III
Color	Dark yellow	Dark yellow	Light brown
Odor	Unpleasant	Unpleasant	Unpleasant
Appearance	Transparent	Transparent	Transparent
Spreadability	1 min.	2 min.	3 min.
Skin irritating	Non irritating	Non irritating	Non irritating
Consistency	Average	Average	Good
Homogeneity	Good	Good	Excellent

Conclusion

Formulating and evaluating herbal pain relief oil involves several steps. First, researchers gather various herbal ingredients known for their analgesic properties, such as turmeric, eucalyptus, camphor, and nirgundi. These ingredients are then extracted using appropriate methods to retain their active compounds. The proportions of each ingredient are carefully adjusted to optimize the oil's pain-relieving potency while ensuring safety and stability. All the three herbal formulations showed significant different activities. Based on the result all the three formulations PRO-I, PRO-II & PRP-III were stable and safe. Since the oil was prepare by using simple ingredients. Herbal oil is providing relief from pain, anti-inflammatory, anti-analgesic and anti-arthritis action. There are no side effect and non-irritant. PRO-III formulation is best to others because it is very effective.

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