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**Formulation and evaluation of herbal oil for the treatment of
arthritis**

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Abstract

Pain, which can vary in severity, is a common symptom in virtually all types of arthritis. Other symptoms include swelling, joint stiffness and aching around the joint(s). Arthritic disorders like lupus and rheumatoid arthritis can affect other organs in the body, leading to a variety of symptoms. Symptoms may include. Herbal preparations are now-a-days widely used by the common people because of concept of fewer side effects and with a better safety and security profile. The present work was aimed to formulate herbal oil for the treatment of arthritis using various herbs. The formulated herbal oil was evaluated and various parameters such as viscosity, saponification value, pH etc. were determined and are reported in this paper.

Key words: Arthritis, Pain, Herbal oil

Introduction

Arthritis is a term often used to mean any disorder that affects joints.^[1] Symptoms generally include joint pain and stiffness. Other symptoms may include redness, warmth, swelling, and decreased range of motion of the affected joints. In some types other organs are also affected. Onset can be gradual or sudden. In the last three-four decades use of herbal preparations has increased exponentially. Most countries now have laws to control, manufacturing, label, sale etc. of herbal preparation in such a way that use of herbal preparation to cure the disease and disorders¹. There are various allopathic medicine are available to cure the arthritis but they have very prolong use and side effects, therefore, to overcome from the same patient are looking to the natural harmony to cure the same. Keeping this point in consideration the present work was undertaken.

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Material and Methods

Collection of plant part

For the preparation of herbal oil various plant materials were collected viz., Aloe vera, Boswellia, Eucalyptus, Ginger, Turmeric, Marigold, Nirgundi, from the Medicinal Plant Garden of College of Pharmacy, Dr. APJ Abdul Kalam University, Indore, M.P and Mustard oil, from the local market of Indore and was properly authenticated in the Department of Pharmacognosy College of Pharmacy, Dr. APJ Abdul Kalam University, Indore, M.P.

Formulation of herbal oil²⁻³

The various ingredients used in the formulation of herbal oil are presented in Table 1. Accurately weigh all the dried and fresh herbs such as Aloe vera, Boswellia, Eucalyptus, Ginger, Turmeric, Marigold, Nirgundi and were grinded in the mixture and was mixed in 63% of mustard oil. The above content was boiled for 15 min. and was filtered through muslin cloth. To the filtrate coconut oil was added to make up the volume (100 mL). Finally small amount of color and flavoring agent was added to the oil and it was placed in amber colored bottle.

Evaluation of herbal oil⁴⁻⁵

The formulated herbal oil was subjected to physical and biological evaluation.

Sensitivity test

The prepared herbal oil was applied on 1 cm skin of hand and exposed to sunlight for 4-5 min.

Acid value

Preparation of 0.1 molar solution: Weighed 0.56 g KOH pellets and dissolved in 100 mL of distilled water and stirred continuously. The prepared 0.1 molar KOH solution was filled in the burette. Preparation of sample: Measured 10 mL oil and dissolved in 25 mL of ethanol and 25 mL of ether mixture and shaken. Added 1 mL of phenolphthalein solution and titrated with 0.1 molar KOH solution.

Saponification value

Accurately weighed 1 mL of oil into a 250 mL of conical flask and 10 mL of ethanol : ether mixture (2 : 1) was added. To this flask 25 mL of 0.5 N alcoholic KOH was. Kept the flask for 30 min. and the flask was cooled. The cooled solution was titrated against 0.5 N HCl using phenolphthalein indicator. Similarly the blank titration was performed without taking oil (sample). Amount of KOH in mg used was calculated.

pH: The pH of herbal oil was determined using pH meter.

Viscosity: The viscosity was determined using Ostwald's viscometer.

Specific gravity: Take the specific gravity bottle, rinsed it with distilled water, dry it in oven for 15 minutes, cool, closed it with cap and weigh it (a). Now fill the same specific gravity bottle with the sample and closed it with cap and again weigh it (b). Determine the weight of sample per milliliter by subtracting the weight (b-a).

Results and Discussion

Herbal oil is one of the most well recognized treatments of arthritis. It provides numerous essential nutrients required to maintain normal function of and relieves from the treatment. The herbal oil was prepared from various herbs (Table 1) and their importance in the formulation is presented in Table 2. The various parameters like sensitivity test, viscosity, pH, irritation test, grittiness test, saponification value and acid value of herbal hair oil was evaluated (Table 3). Hence, from the present investigation it was found that the formulated herbal oil has optimum standards and further standardization and biological screening establishes the efficacy of formulated herbal oil.

Table 1: Ingredients used in formulation of herbal hair oil

S. No.	Ingredients	Quantity (%)
1	Aloe vera	3
2	Boswellia	2
3	Eucalyptus	10
4	Ginger	3
5	Turmeric	2
6	Marigold	2
7	Nirgundi	12
8	Mustard Oil	60
9	Rang	5
10.	Flavors	1

Table 2: Role of herbs in herbal hair oil

S. No.	Ingredients	Importance
1.	Aloe vera	Reduce inflammation
2.	Boswellia	Helpful in joint pain
3.	Eucalyptus	Reduce pain
4	Ginger	Healing agent
5.	Turmeric	Healing agent

6.	Marigold	Promotes blood circulation
7.	Nirgundi	Promotes blood circulation
8.	Mustard Oil	Vehicle and muscle relaxant
9.	Rang	Colorant
10.	Flavoring agent	Flavour

Table 3: Evaluation of herbal hair oil

S. No.	Parameters	Inference
1.	Specific gravity	1.0829
2.	Viscosity	0.89
3.	Acid value	4.1
4.	Saponification value	120.97
5.	pH	7.1
6.	Sensitivity test	No irritation
7.	Irritation test	No irritation
8.	Grittiness	Smooth

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