

Joint pain relief oil:- combination of Hadjod extract and other herbal ingredients

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Abstract :-

Hadjod can reduce swelling, relieve pain, treat allied illnesses associated with fractures, and aid in healing fractures. The inclusion of Beta-sitosterol and lutein flavonoids in Hadjod is responsible for its anti-inflammatory properties.

Iridoids, alkaloids, flavonoids, stilbene derivatives, sterols, triterpenes, fatty acids, methyl esters, and other phytochemicals have been found in the Hadjod. The presence of five well-known chemicals on leaves were discovered, including Tetratriacotanol, Ecosyl eicosanoid, Tetratriacontanoic acid, Î±Î²-amyrin, Î²-sitosterol. Polyphenols such as Dinesen, Quercetin, and Genistein were also reported in the

Keyword :-Hadjod extract, clove & cinnamon, ginger, almond oil, camphor, all effective in joint pain relief

I. Introduction :-

Arthritis isn't a single disease; the term refers to joint pain or joint disease, and there are more than 100 types of arthritis and related conditions. People of all ages, races and sexes live with arthritis, and it is the leading cause of disability in the U.S. It's most common among women, and although it's not a disease of aging, some types of arthritis occur in older people more than younger people. Common arthritis symptoms include swelling, pain, stiffness and diminished range of motion in joints.

1) Autoimmune Inflammatory Arthritis

A healthy immune system is protective. It generates inflammation to clear infections and heal injuries. But in inflammatory arthritis, the immune system is overactive, attacking healthy tissue, including joints in the spine, hands and feet. In some people, inflammation becomes systemic, damaging the eyes, skin, heart and other organs. Many, but not all types of inflammatory arthritis are considered autoimmune diseases because the immune system loses the ability to distinguish self from not-self and attacks the

2) Gout (Metabolic Arthritis)

Metabolic or gouty arthritis — commonly known as gout — results from a buildup in joints of painful uric acid crystals. These are a by-products of the breakdown of purines — substances normally found in human cells and many foods, especially red meat, organ meats, some seafoods and alcohol. Normally the body gets rid of excess uric acid, but when it doesn't, it can accumulate in joints, causing sudden and intense bouts of pain, especially the big toe.

However, most people with high uric acid levels never develop gout and many gout patients have normal uric acid. Some research suggests that certain factors in addition to uric acid might trigger gout. Possible culprits include damage from OA, disruptions in the microbiome and even white blood cells in the fluid inside joints.

What is causes of arthritis?



Arthritis may be caused by Trusted Source:
wear and tear of a joint from overuse
age (OA is most common in adults over age 50)
injuries
obesity
autoimmune disorders
genes or family history

Symptoms arthritis include:

1. Morning stiffness that can last 30 minutes or more
2. more than one affected joint
3. onset in smaller joints like feet and hands
4. same joints on both sides of the body are affected
5. fatigue
6. low-grade fever
7. inflammation of the eyes and mouth
8. inflammation of the heart muscle and blood vessels
9. low red blood cell count

Aim as objective :-

Aim :-

To formulation and evaluation of joint pain relief oil from hadjod plat leaves exaction
And other herbal ingredient

Objective :-

1. Ayurvedic oils can aid quicker recovery from joint, bone and muscle injuries.
2. Using Ayurvedic oils to massage your joints can help relieve joint pain, inflammation, and stiffness.
3. It is believed that regular Ayurvedic oil massages can help eliminate toxins and get rid of impurities in the body.
4. Some theories and studies also suggest that using Ayurvedic oils can help you burn fat and shed any excess weight.
5. Massage therapy improves the blood circulation, especially in the targeted areas where there might be stiffness, inflammation or pain.
6. Ayurvedic oil massage can stimulate internal organs, improve their functioning and help remove metabolic waste from the body.
7. Ayurvedic oils also promote the self-healing of cells, tissues, bones, muscles, and joints.

Chemical properties of ingredient :-

1.Hadjod plant :-



Botanical name : Cissus quadrangularis

Family : Vitaceae

Chemical constituents : iridoids, stilbene derivatives, sterols, triterpenes, alkaloids, fatty acids, methyl esters, flavonoids.

Therapeutic uses : Heals Bone Conditions
The juice of hadjod stem derivatives can be consumed internally as well as a paste or powder prepared from its leaves applied externally, on fractures, osteoporosis and arthritis. Hadjod speeds up bone mineralization and formation, simultaneously increasing bone mineral density and strength, and pacifying aches in the joints

Promotes Weight Loss

Hadjod juice works wonders in improving lipid metabolism in the body, decreasing fat accumulation and accelerating calorie consumption and weight loss in those who are obese.

Treats Dental Infections

Plaque, tartar and cavities cause discomfort in the teeth and gums. Following brushing, rinsing with hadjod juice clears all infectious agents causing toothaches, due to its extensive antimicrobial characteristics.

2. Almond oil :-



Botanical name: Prunus dulcis

Family : Rosaceae

Chemical constituents : The active constituents of almonds are globulins such as amandine and albumin and amino acids such as arginine, histidine, lysine, phenylalanine, leucine, valine, tryptophan, methionine and cystine. Almonds contain proteins and certain minerals such as calcium and magnesium.

Uses :-

Almonds are rich in proteins, fibre and nutrients

Almond trees are the oldest domesticated trees that date back to 3000 to 2000 BC in Jordan

Almonds reduce your risk of cholesterol

Almond can regulate blood sugar

Consuming almonds in excess can cause nausea, diarrhoea, shortness of breath and problems in swallowing etc.

Almond is not a nut, instead, it is a seed of a fruit

Almonds can be stored in a refrigerator for 2 years and this is because of their high content of vitamin E

India considers almonds as major brain food for children

1. In Bone Development

Almonds are a great source of vitamin D, calcium, and potassium. Needless to say, this can be very beneficial for strengthening your bones. Simply massage few drops of almond oil to your bones and joints and in many cases, you can get rid of arthritis. Changing the culinary landscape and the way we use food ingredients.

Almond oil for Hair Benefits

Almonds are also very good for the health of your hair. People apply almond oil to their hair in order to strengthen it. Studies prove that almonds help in making the hair strong, healthy, and dark.

Almond oil for Skin Care

Almonds oil is very good for the skin as they help in nourishing the skin. Almonds oil is rich in vitamin – E that helps in moisturizing your skin and also prevents the occurrence of various skin diseases, such as acne, pimple, etc. The use of almond oil on a daily basis helps you to maintain clear and glowing skin.

3.Ginger :-



Ginger (*Zingiber officinale*) is a herbaceous flowering plant that belongs to the family Zingiberaceae. They are perennial plants that live for more than two years. Ginger is a rhizome which is a modification of the stem. It is native to Southeast Asia and is known for its pungent smell.

Family: Zingiberaceae

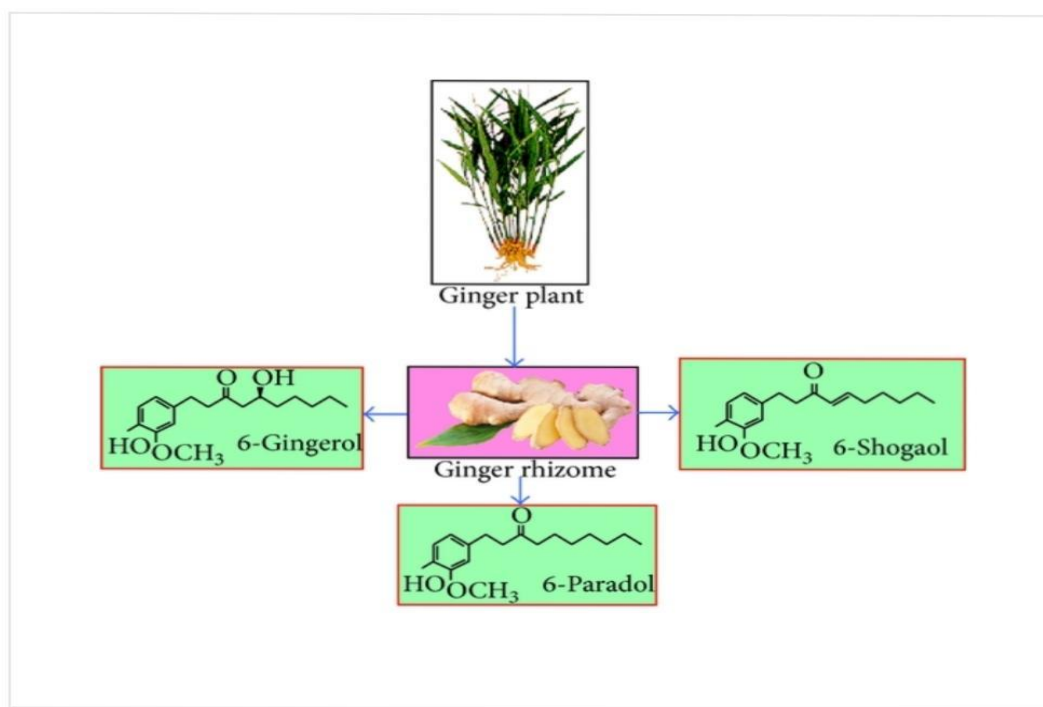
Species: *Z. officinale*

Chemical constituents :-

1. Ginger and Its Constituents

Ginger (*Zingiber officinale*), a member of the Zingiberaceae family, is a popular spice used globally especially in most of the Asian countries [9].

Chemical analysis of ginger shows that it contains over 400 different compounds. The major constituents in ginger rhizomes are carbohydrates (50–70%), lipids (3–8%), terpenes, and phenolic compounds [10]. Terpene components of ginger include zingiberene, β -bisabolene, α -farnesene, β -sesquiphellandrene, and α -curcumene, while phenolic compounds include gingerol, paradols, and shogaol (Figure 2). These gingerols (23–25%) and shogaol (18–25%) are found in higher quantity than others. Besides these, amino acids, raw fiber, ash, protein, phytosterols, vitamins (e.g., nicotinic acid and vitamin A), and minerals are also present.



Therapeutic use :-

Osteoarthritis:-

Some research shows that taking ginger can modestly reduce pain in some people with a form of arthritis called "osteoarthritis." One study shows that taking 250 mg of a specific ginger extract (Zintona EC) four times daily reduces arthritis pain in the knee after 3 months of treatment. Another study shows that using a different ginger extract (Eurovita Extract 77; EV ext-77), which combines a ginger with alpinia, also reduces pain upon standing, pain after walking, and stiffness. Some research has compared ginger to medications such as ibuprofen. In one study, a specific ginger extract (Eurovita Extract 33; EV ext-33) did not reduce arthritis pain as well as taking 400 mg of ibuprofen three times daily. But in another study, taking 500 mg of ginger extract twice daily worked about as well as 400 mg of ibuprofen three times daily for hip and knee pain related to arthritis. In another study, a specific ginger extract combined with glucosamine (Zinaxin glucosamine, EV ext-35) worked as well as the anti-inflammatory medication diclofenac slow release (100 mg daily) plus glucosamine sulfate (1 gram daily). Research also suggests that massage therapy using an oil containing ginger and orange seems to reduce short-term stiffness and pain in people with knee pain.

Chronic obstructive pulmonary disease (COPD):-

Research shows that taking two capsules of a specific combination product (AKL1, AKL International Ltd) containing ginger twice daily for 8 weeks does not improve respiratory symptoms in people with COPD.

Diabetes. There is inconsistent evidence about the effects of ginger on blood sugar control in people with diabetes. Some research suggests that taking ginger daily in two divided doses for 8 weeks reduces insulin levels, but not blood sugar. Another study shows that ginger affects blood sugar, but not insulin levels. Although it's not clear, the conflicting results may be due to the dose of ginger used or the length of time the patients had been diagnosed with diabetes.

Upset stomach (dyspepsia). Research suggests that taking a single dose of 1.2 grams of ginger root powder one hour before eating speeds up how quickly food empties out of the stomach in people with dyspepsia.

Alcohol hangover. Early research suggests that taking a combination of ginger, pith of Citrus tangerine, and brown sugar before drinking decreases symptoms of alcohol hangovers, including nausea, vomiting, and diarrhea.

High cholesterol. Research suggests that taking 1 gram of ginger three times daily for 45 days lowers triglyceride and cholesterol levels in people with high cholesterol.

4.clove :-



Scientific name :- Syzygium aromaticum

Family :- Myrtaceae

Chemical constituents :-

The antioxidant activity of a commercial rectified clove leaf essential oil (*Eugenia caryophyllus*) and its main constituent eugenol was tested. This essential oil comprises in total 23 identified constituents, among them eugenol (76.8%), followed by beta-caryophyllene (17.4%), alpha-humulene (2.1%), and eugenyl acetate (1.2%) as the main components. The essential oil from clove demonstrated scavenging activity against the 2,2-diphenyl-1-picrylhydracyl (DPPH) radical at concentrations lower than the concentrations of eugenol, butylated hydroxytoluene (BHT), and butylated hydroxyanisole (BHA). This essential oil also showed a significant inhibitory effect against hydroxyl radicals and acted as an iron chelator. With respect to the lipid peroxidation, the

inhibitory activity of clove oil determined using a linoleic acid emulsion system indicated a higher antioxidant activity than the standard BHT.

Therapeutic uses :-

Arthritis refers to pain that affects the joints of the body. While it may seem like a common condition, arthritic pain affects day-to-day functioning. It causes searing, inflammatory pain in the joints of the body, which can be caused by at least 100 different types of diseases. Some of which include osteoarthritis, rheumatoid arthritis, gout, lupus, fibromyalgia, etc. It can cause chronic pain in people with these conditions. Common symptoms include radiating pain, swelling and heat in the joints. Painkillers, both topical and internal, are often used in the treatment of arthritis. But these days, alternative methods are also used to treat the pain naturally. One of the best remedies of arthritis pain is clove oil.

5. Cinnamon :-



Scientific name:- *Cinnamomum verum*

Family :- Lauraceae

Chemical constituents :-

Chemical Constituents

Cinnamon consists of a variety of resinous compounds, including cinnamaldehyde, cinnamate, cinnamic acid, and numerous essential oils [50] (Table 1). Singh et al. [51] reported that the spicy taste and fragrance are due to the presence of cinnamaldehyde and occur due to the absorption of oxygen. As cinnamon ages, it darkens in color, improving the resinous compounds [51]. Sangal reported various physiochemical properties of cinnamon (Table 2). The presence of a wide range of essential oils, such as trans-cinnamaldehyde, cinnamyl acetate, eugenol, L-borneol, caryophyllene oxide, b-caryophyllene, L-bornyl acetate, E-

nerolidol, α -cubebene, α -terpineol, terminate, and α -thujene, has been reported

Therapeutic uses :-

Cinnamon is used as a natural remedy to treat various ailments and pain. However, it stands to be an excellent home remedy to curb arthritic pain. In case of rheumatoid arthritis, which is an autoimmune disease, the body's immune system attacks the joints leading to bone loss, swelling, inflammation and ultimately, the unbearable pain. However, joint problems could also arise because of osteoarthritis that happens due to excessive wear and tear of the joints as one ages.

Cinnamon bark, as part of a multi-ingredient preparation, is applied to the penis for premature ejaculation.

6. Camphor :-



Scientific name :- Camphora officinarum

Family :- Lauraceae

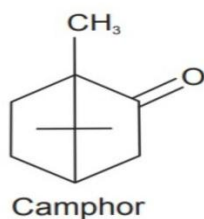
Genus: Camphora

Species: C. officinarum

Chemical constituents :-

EO was dominated by monoterpenes amounting to 88.06% represented by 11 hydrocarbons (36.79%) and 04 oxygenated derivatives (51.27%) with D-camphor (46.06%), limonene (9.74%), α -pinene (9.71%), β -myrcene (4.91%) and camphene (4.37%) as major constituents.

Camphor oil contains camphor, cineole, pinene, camphene, philanderer, limonene, and diterpenes. Camphor is entirely a monoterpenes ketone. Its basic carbon framework is related to borneol.



Therapeutic uses :-

Camphor products such as Icy Hot and Biofreeze may be effective in relieving pain, inflammation, and swelling due to arthritis. The hot or cold sensations

that arise after application of these creams may distract you from the pain.

Relieves pain

Applying camphor to the skin helps to relieve pain and inflammation. A small 2015 Trusted Source study found that a spray containing natural ingredients such as camphor, menthol, and essential oils of clove and eucalyptus was effective in relieving mild to moderate pain. The spray was applied to the joints, shoulders, and lower back for a period of 14 days. You may feel a tingling, warming, or cooling sensation when you use camphor products. Apply a camphor spray or ointment to the affected area several times per day.

Relieves congestion and coughing

Camphor oil works as a decongestant and cough suppressant. According to a 2010 study, vapor rub was most effective in relieving night cough, congestion, and sleep difficulty in children with upper respiratory tract infections.

To use, place 2 teaspoons of Vicks VapoRub in a bowl of hot water. Hold your head over the bowl and cover your head with a towel as you inhale the vapors. You can also apply the balm to your chest or feet and then cover them with socks. Avoid putting it in or around your nostrils.

Antispasmodic

Camphor products may also be used as a muscle rub. It may help to relieve muscle cramps, spasms, and stiffness. A 2004 study found that camphor has antispasmodic and relaxant properties. To use, massage a muscle rub such as Bengay onto your sore muscles a few times a day.

Other uses

Scientific research is limited for some of the purported uses for camphor and the evidence is largely anecdotal. Camphor oil may also be used to treat:

7. Neem as a preservative :-



Scientific name :- Azadirachta indica

Family :- Meliaceae

Chemical constituents :-

Azadirachta indica L. (neem) shows therapeutics role in health management due to rich source of various types of ingredients. The most important active constituent is azadirachtin and the others are nimbolinin, nimbin, Nimbidin, nimbidol, sodium nimbinat, gedunin, salannin, and quercetin.

Neem wood contains, cellulose, hemicellulose (14.00%) and lignin (14.63%), while wood oil contains β -sitosterol, cycloeucalenol and 24-methylenecycloartenol. The tree exudes a gum, which on hydrolysis yields, L-arabinose, L-fucose, D-galactose and D-glucagon acid.

Fresh leave extract of Neem give the following active biological compounds, i.e. Quercetin and -sitosterol, polyphenolic flavonoids, they have antibacterial and antifungal properties (Singh & Sastry, 1997), and the neem seeds contains constituents including gedunin and azadirachtin in it”.

Therapeutic uses :- Neem oil is extracted from the neem tree. It is very beneficial for both skin and hair health. It is used as a medicine for some skin diseases. Antiseptic properties of neem add immense value to various products such as medicines and beauty and cosmetic products. It is also used in pesticides and as a natural insect repellent. Neem oil has countless benefits. Here are some of the benefits:

Anti-fungal and anti-bacterial:

Neem leaves have anti-fungal and anti-bacterial properties. They are used to treat warts, dark spots, infections, and chicken pox. Either the person is made to bathe in Neem water, or Neem paste is applied on the affected area for the treatment.

Ear ailments: Neem leaves soothe inflammation by soothing itching and irritation. Prepare a paste from Neem leaves and honey and apply it to treat any ear boils.

Insecticide: Tired of those tiny insects that keep on bugging you all night long? Here’s a solution to it!

Keep Neem-soaked cotton near your windows or burn Neem leaves to keep these tiny creatures away from your home. It is handy and is used to fight mosquito menace.

Beauty benefits: If you have pimples on your face, apply the Neem leaf decoction. The leaves moisturize the skin keeping it soft and supple. They are highly effective for lightening scars and pigmentation caused

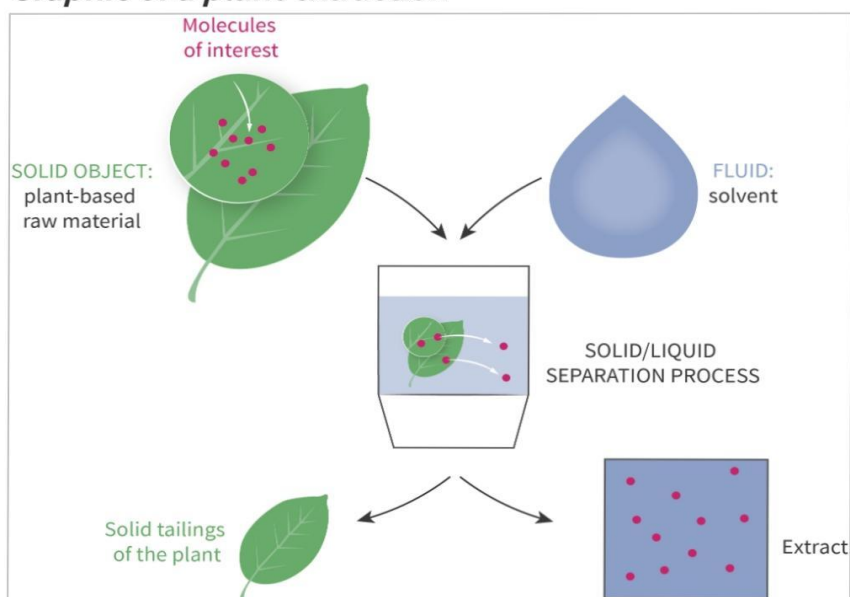
Method of preparation :-

Extraction of Hadjod plant :-

PLAN OF WORK :

- 1) Selection of active
- 2) Collection and Authentication
- 3) Extraction Method
- 4) Selection of base
- 5) Formulation
- 6) Preparation
- 7) Evaluation

Graphic of a plant extraction



Plant Material

The herb of *Cissus quadrangularis* were purchased from Orissa, Karnataka and Dehradun India and identified by our Taxonomist. A voucher specimen has been maintained at R&D Department, Phyto Ingredients Biopharma Pvt. Ltd. Yamunanagar, Haryana, India. All other reagents were LR Grade as per requirement. The active compound 3-Ketosterone Was tested by gravimetric method.

Extraction Method

Preparation of Water Extract

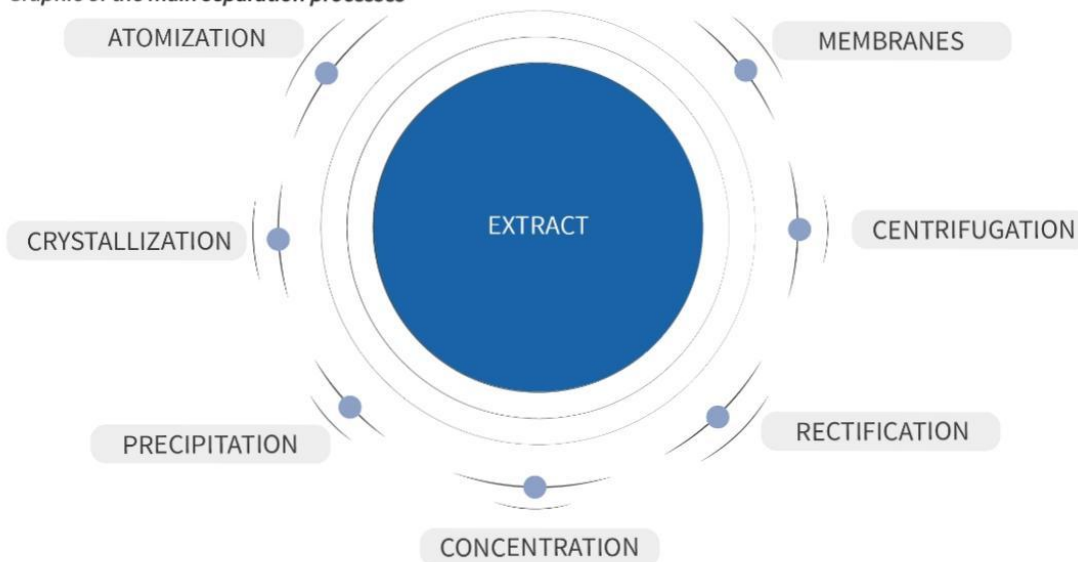
The air dried plant of hadjod were powdered and passed through 20mesh sieve. The sieved material (100g) was extracted

With 1200ml of water in a well sealed, flat bottomed glass container for overnight accompanying occasional shaking and Stirring. The whole mixture was filtered and concentrated on water bath then dry.

stimation of Physio-chemical Parameters

The total ketosterone content in *Cissus quadrangularis* L. extract was determined by Gravimetric method. pH, Ash Content(%) & LOD(Loss on Drying) were estimated by the method of Ayurvedic Pharmacopoeia of India(API,1999).

Graphic of the main separation processes



Extraction of ginger :-

The preparation method of ginger essence of the present invention is, with the ginger is raw material, squeeze emulsus squeeze the juice (about 50%) and ginger slag, squeeze the juice after treatment, with the centrifugal 15-30 of 2000-4000 rev/min speed minute, separate lower floor's slag cream, middle level centrifuge and upper strata cold press ginger oil (0.1-0.5% that is about ginger), the cold press ginger oil contains the pungency component of ginger, again with centrifuged, slag cream merges with the ginger

slag of compression gained, steam distillation gets volatile oil (0.1-0.3% that is about ginger), and volatile oil contains the flavor component of ginger, is the armaticity volatile matter, the cold press ginger oil is eaten the excipient granulation with solubility, excipient generally can adopt Icing Sugar, dextrin or lactose etc., oven dry then, pulverize, sieve, spray volatile oil, make faint yellow ginger essence. Wherein volatile oil content is generally 1-10%(weight), cold press ginger oil content is 2-20%(weight).



Procedure :-

- Wash glassware with distilled water and dry it
- Take 100 gm of almond oil or mustard oil heat on small flame of burner
- Add 1 to 2 spoon carom seed and 15 to 20 clove heat on 20 ° to 30° C with continuous stirring for 10 minutes
- Add 3.5 g ginger powder in Cissus quadrangularis extraction and mix well .
Or
- Also ginger slice directly added in almond oil.
- Mixture heat for 15 minute on 30 to 40 ° C with continuous stirring.
- Then oil filter with oil stainer.
- Oil transfer in another beaker and add 4 g camphor powder and stir again for 5 minute
- Cool the oil and then add neem oil as a preservative.

Evaluation test for pain relief oil :

The prepared herbal analgesic oil was subjected to under mentioned evaluations.

Organoleptic evaluation:

Different parameters were studied such as: **Colour, Physical state, Odour and solubility**

Phytochemical evaluation:

The formulated herbal analgesic oil were subjected to qualitative chemical analysis for identification of various plant constituents like alkaloids, saponins, glycosides, protein, steroids, carbohydrates and flavonoids.

Constituents

Constituents	Joint pain relief oil
Alkaloids	Present (+ve)
Flavonoids	Present (+ve)
Steroid	Present (+ve)
Carbohydrate	Present (+ve)
Glycoside	Present (+ve)
Saponins	Present (+ve)
Protein	Absent (- ve)
Tetratriacotanol	Present (+ve)
Paradols	Present (+ve)
Terpene	Present (+ve)
Aldehyde	Present (+ve)

Chlorogenic acid	Present (+ve)
Secoisolariciresinol	Present (+ve)
Peptide	Present (+ve)
Lonalool	Present (+ve)
1,8 Cineeole	Present (+ve)

II. Conclusion :-

The present study revealed that the optimized herbal formulation C2 consisting of plant Extract shows comparatively better result than other formulations. FT-IR study revealed that There is no possible drug interaction with other components present in extract and in vvitru Drug release study shows that C2 releases the drug with desired profile. The release of Formulation increased when the concentration of aerosil decreased. Thus the study concluded That the formulation containing Cissus quadrangularis extract may possess efficient antiinflammatory profile.

Result :- The fresh plant is green in color which on Drying shows buff color with greenish ting. The Odor is characteristic with an acid taste. The Surface of fresh plant material is smooth and Glabrous to touch. Fresh stems are thick, fleshy, Quadrangular with acutely 4 winged internodes Whereas leaves are simple, opposed, thickly Coriaceous, ovate or reniform, highly coiled.

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