

# POLYHERBAL SCRUB FORMULATION FOR THE MANAGEMENT OF VERICOSE VEINS

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## ABSTRACT:

Varicose veins are a common vascular disorder affecting a significant portion of the population, leading to discomfort and aesthetic concerns. This project aims to develop a polyherbal scrub formulation for the management of varicose veins. The formulation combines various herbal ingredients known for their potential therapeutic effects on venous health. This study involves the formulation, optimization, and evaluation of the polyherbal scrub's physicochemical properties, stability, and in vitro efficacy in promoting improved venous circulation. The results of this project have the potential to provide an alternative and natural approach for managing varicose veins, thereby improving the quality of life for affected individuals. This research contributes to the field of pharmacy by exploring the use of traditional herbal knowledge in contemporary healthcare solutions. The project begins with a comprehensive review of the existing literature on varicose veins, herbal remedies, and the therapeutic potential of individual herbal constituents. It also includes an analysis of the safety and efficacy profiles of these herbs to ensure the safety of the formulation. The polyherbal scrub formulation is then developed by carefully selecting and combining specific herbs and natural ingredients that have demonstrated promise in promoting venous health.

**Key Words:** Varicose Veins, Polyherbal Formulation, Herbal Remedies, Herbal Constituents, Safety and Efficacy Profiles.

## INTRODUCTION:

Varicose Veins is common disease which affects one third of the population of which prevalence is observed in the Western Europe and the United States. A study revealed that, from the affected population, there is around 1-73% of females (especially during pregnancy) exposed to this disease and on an average 2-56% of males. Thus, we may conclude that women are more likely to be affected than men. Varicose Veins or Venous Insufficiency is a disease which involves

enlargement and gnarling of the Veins usually of legs. In this disorder, there is reflux flow of blood through the valves of legs, hence instability in circulation of blood.

The risk factors of includes age, hereditary, pregnancy, obesity, occupation which involves prolonged hours of standing, Diet, Type of physical activity, Excess use of hormones etc. These factors are not clearly known yet. Symptoms related to Varicose may not be observed in case of some affected population. If seen the symptoms at initial stages include severe pain, swelling, itching, heavy legs, and lipodermatosclerosis (skin thickening). If left untreated, the further complications lead to bleeding veins, eczema, skin pigmentation or discoloration, venous ulcers, and hence complete vein incompetence. Diagnosis of the disease is done using the duplex scan method of investigation <sup>[1]</sup>.

Varicose veins are often primary (affecting only the superficial veins) and often result from a congenital or familial predisposition that leads to the loss of elasticity of the vein wall. Secondary varicosities occur when trauma, obstruction, or inflammation causes damage to the valves (which affect the deep veins). Varicose veins can appear anywhere in the body, but most often affect the legs and feet. Although they can be painful and disfiguring, they are usually harmless. If varicose veins are not treated early, there can be complications such as chronic venous insufficiency. Patients with varicose veins are at increased risk of deep vein thrombosis because venous stasis and injury often cause superficial phlebitis that can pass through perforating vessels to involve the deep venous system

Varicose veins, also known as spider veins, varicose or varicosities, are twisted or enlarged veins, occurring mainly in the legs. Varicose veins occur when the veins become dilated, enlarged and overfilled with blood. Varicose veins will typically appear swollen and enlarged, often associated with pain and inflammation. They tend to be blueish purple or red. The condition of varicose veins is rather common, especially among women. Around 25 to 30 per cent of adults suffer from varicose veins, especially in the lower legs. [2].

## CAUSES

1. In 40% of the persons, varicose veins are due to hereditary factors, which run into families and generations in determining the susceptibility to primary valvular failure.
2. Prolonged standing and prolonged sitting with legs down leads to increased hydrostatic pressure that can cause chronic venous distension and secondary valvular incompetence anywhere within the superficial venous system.
3. Pregnancy is a common cause of varicosities. During pregnancy, circulating hormonal factors increase the distensibility of vein walls and soften valve leaflets. Late in pregnancy, the enlarged uterus compresses the inferior vena cava, causing further venous hypertension and secondary distension of leg veins.
4. Varicose veins occur both in men and women, but are more frequent in women because vein walls and valves periodically become more distensible under the influence of cyclic increase in progesterone.
5. Due to lack of exercise and advanced overweight, veins become weak and develop into varicose veins. Due to obesity, a lot of fat gets deposited. This weakens the support system of the veins, resulting in the veins dilating and becoming tortuous.
6. Dietary deficiencies or the loss of skin elasticity due to aging are the contributing factors.
7. High-heeled sandals and tight clothing are significant contributors to the development of varicose veins; they obstruct the normal flow of blood in the veins.
8. Constipation can contribute to varicose veins.
9. Repeated heavy lifting can interfere with normal circulation (to increase the likelihood that varicose veins will develop and can worsen existing varicosities).

Today a lot of occupations and professions have sprung up where people are required to either continuously stand for a long time or are made to sit hanging down their legs for a considerable time – computer professionals, security guards, traffic police, salesmen working at counters in departmental stores, teachers, nurses, paramedical workers working in various hospital setups and persons doing desk jobs day in and day out are the sufferers of varicose veins[2].

## Why Do Varicose Veins Usually Appear in the Legs?

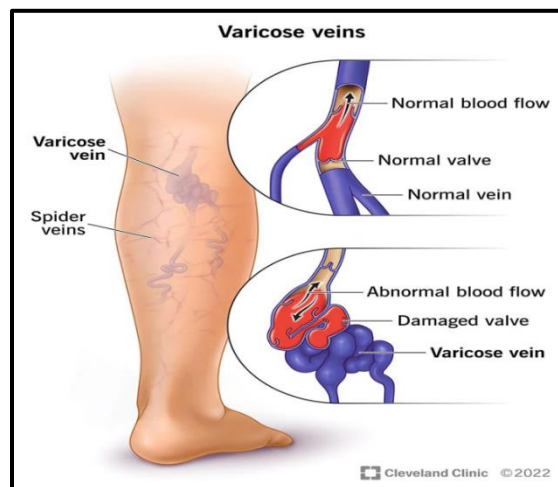


Fig.1. varicose veins

The force of gravity, the pressure of body weight, and the task of carrying the blood from the bottom of the body to the heart make legs the primary location for varicose veins. Compared to other veins of the body, leg veins have the toughest job of carrying blood back to the heart. They endure the most pressure. This pressure can be stronger than the veins out way valves.[2]

## WHAT ARE VARICOSE VEINS:

Varicose veins are enlarged, swollen, and twisting veins, often blue or dark purple in appearance. These veins contain valves which don't work properly, meaning that blood instead of streaming from your legs towards your heart, flows backwards. This backward flow can cause pain and swelling in your leg with time, especially when standing for long periods.

**Risk Factor:** Certain factors increase your chances of developing varicose veins, including:

**Age:** Because of the aging process, vein walls and valves don't work as well as they once did. Veins lose elasticity and stiffen.

**Gender:** Female hormones can allow the walls of the veins to stretch. People who are pregnant, taking the birth control pill or going through menopause have a higher risk of varicose veins because of changes in hormone levels

**Family history:** This condition can be inherited (runs in families).

**Lifestyle:** Standing or sitting for long periods decreases circulation. Wearing restrictive clothing, such as girdles or pants with tight waistbands can decrease blood flow.

**Overall health:** Certain health conditions, such as severe constipation or certain tumors, increase pressure in the veins.

**Tobacco use:** People who use tobacco products are more likely to develop varicose veins.

**Weight:** Excess weight puts pressure on blood vessels.

### **Relief: The Top Five Tips:**

#### **1] Elevate your legs:**

You can try to get relief from the symptoms of varicose veins by elevating your legs for several minutes throughout your day. Make sure to get them high enough that they are at a level that is above the level of your heart Especially after exercise: This will take the pressure off your legs and make it easier for the valves to work and the blood to flow smoother.

#### **2] walk every day to build your calf muscles:**

Your leg veins have to fight the effect of gravity and need all the help they can get. So, keeping your leg muscles in shape and well-toned helps to relieve symptoms.

#### **3] keep your weight down:**

If you gain weight or have a few too many kilos this may contribute to varicose veins as more pressure is placed on your legs. Make sure that you eat a healthy balanced diet and avoid excessive processed foods [3].

### **Benefits of scrubbing skin:**

Reduces Stress: Exfoliation or scrubbing the skin gives good massage, which gives relaxing feeling and reduces stress. scrubs are solid or semisolid systems of at least two constituents, containing various natural and chemical ingredients which are safer to use and having fewer side effects and they also possesses antiseptic, anti-infective, antioxidant, anti-aging and humectant properties. The scrubs are made by simple mixing methods of two or more ingredients herbal [4].

### **OBJECTIVES:**

Different herbal ingredients used to prepare scrub. Different evaluations tests are carried out for the prepared herbal scrub formulation, such as appearance, spread ability, irritability, PH, washability, etc. Prepared formulation passes all the

given evaluation tests. Thus, the prepared formulation of polyherbal scrub was effective for healthy, and pain relief of varicose veins. To conduct a comprehensive review of the literature on the etiology, pathophysiology, and conventional treatment options for varicose veins.

To identify and select the herbal ingredients based on their traditional uses, scientific evidence, and safety profiles for the treatment of varicose veins.

To standardize the formulation of the poly herbal scrub based on the physicochemical parameters, such as pH, viscosity, and stability.

To assess the safety of the poly herbal scrub using in vitro irritation.

To prepare a final report of the project summarizing the methodology, results, and conclusions of the study Poly Herbal scrub can help to improve blood circulation to the legs which can then help to prevent varicose veins.

To provide a natural and effective treatment for varicose veins without using chemical-based products or extraction methods.

To improve blood circulation in the affected areas and reduce inflammation and pain associated with varicose veins.

To exfoliate dead skin cells and improve skin texture and appearance.

To provide a relaxing and rejuvenating experience while treating varicose veins.

To use a combination of herbs that are known to be effective in treating varicose veins and promoting overall skin health.

To create a cost-effective and easy-to-use treatment option for individuals with varicose veins.

To promote natural healing and encourage individuals to take a holistic approach to their health and wellness.

### **MATERIAL AND METHOD:**

**Ingredients:** Sunth, Vit E pills, Multani Mitti, Nirgundi, root powder, Punarnava powder, Dried Marigold petals powder, Manjishtha powder, Sesame oil, Rosemary essential oil, Bees wax, Liquid Paraffin, Borax, Methyl Paeaben, Propyl Paeaben, Disilled Water.

**Excipient:** White bees wax, Liquid Paraffin, Methy Paraben, Propyl Paraben, Borax.

**Procedures:**

- 1] In a clean and dry mixing bowl add Multani Mitti, Sunth powder, Punarnava powder, Manjishtha powder, and dried marigold petals powder.
- 2] Cut open the Vitamin E pill and pour the contents into the mixing bowl.
- 3] Slowly add the Sesame oil to the mixture, stirring continuously, until you get a thick paste-like consistency.
- 4] Add coffee powder to the mixture and mix well. (Optional).
- 5] Finally, add Q.S drops of Rosemary essential oil and mix well.
- 6] And scrub Base was prepared by fusion methods.

**Direction to use:** To use the scrub, apply a small amount to damp skin and massage gently in a circular motion for 1-2 minutes. Rinse off with warm water and pat dry.

**Apparatus:** Measuring Cylinder (100ml), Beaker (100ml). Stirrer, Thermometer, Water bath.

**PROCEDURE:**

Required quantity of bees wax and liquid paraffin were taken in a beaker and heated on a water bath up to 70°C to obtain a moulter mask (Phase A or Oily phase).

In another beaker take a borax, water and heated up to 75°C (Phase B or Aqueous phase).

Mix both the solutions by adding are phase into another phase with continuous stirring till a cream like consistency.

Add the preservative or methyl Paraben, Perfume and pack it in a suitable container, label and submit it [5].

SR.NO.	INGREDIENTS	CATEGORY	QUANTITY [GM].
1	Sunth powder	Anti-inflammatory Agent, Circulatory stimulant.	0.50 gm
2	Multani mitti	Remove black heads and white heads.	05 gm
3	Nirgundi Root Powder	Management of pain	1.25 gm
4	Punarnava powder	Antioxidant	0.50 gm
5	Manjishtha Root Powder	Anti-Inflammatory	0.50 gm
6	Dried Marigold Petal Powder	Antimicrobial Agent.	0.50 gm
7	Coffee	Natural Exfoliant, Anti aging	0.50 gm
8	Vit.E	Anti-inflammatory Agent, Antioxidant	1 gm
9	Sesame oil	Moisturizer	1 gm
10	Rosemary Essential oil	Natural Remedies, Anti-Inflammatory	Q.S
11	Bees wax	Emulsifying Agent	4.8
12	Liquid Paraffin	Lubricant	15 gm
13	Borax	Emollient	0.24 gm
14	Methyl Paraben	Preservative	0.54 gm
15	Propyl paraben	Preservative	0.06 gm
16	Distilled Water	Vehical	9.9 gm

## 1. DRIED SUNTH POWDER



Fig.2.

**Kingdom:** Plantae.

**Family:** Zingiberaceae.

**Genus:** Ginger.

**Species:** Zingiber officinale.

Ginger consists of the fresh or dried rhizomes of *Zingiber officinale* (Family: Zingiberaceae). The dried rhizome powder of ginger is known as Senth or Soonth. ginger has been used as an anti-inflammatory because of its prostaglandin synthesis inhibition property [6]. Ginger stimulates circulation, may help prevent heart attacks, has natural blood thinning properties, lowers blood cholesterol levels, cleanses and stimulates blood supply, prevents internal blood clots, may prevent TIA's (mini strokes), acts therapeutically to reduce hypertension, and prevents oxidation of LDL which contributes to cholesterol deposits on artery walls. Ginger has a tonic effect on the heart, and may lower blood pressure by restricting blood flow in peripheral areas of the body. Further studies show that ginger can lower cholesterol levels by reducing cholesterol absorption in the blood and liver [7].

## 2. MULTANI MITTI



Fig.3.

The oil-absorbing properties of multani mitti make it effective against acne and help speed up the healing process. Used as a scrub, multani mitti can slough away dead skin cells and remove blackheads

and whiteheads, giving skin a natural and healthy glow. Boost's circulation and improves skin health and tone Multani mitti, also known as Fuller's earth, is a type of clay that is commonly used in traditional medicine for its many benefits to the skin and body. However, there is no scientific evidence to suggest that it is effective in treating varicose veins. [8].

## 3. NIRGUNDI ROOT POWDER



Fig.4.

**Kingdom** - Plantae

**Family** – Lamiaceae

**Genus** - Vitex

**Species** - Negundo

*Vitex negundo* Linn is a large aromatic shrub (commonly known as Nirgundi, Five leaved chaste tree) belonging to the family Verbenaceae. Almost all the parts of this plant possess great medicinal values and it is employed as a remedy in various traditional systems of medicine like Ayurveda, Chinese, Siddha and Unani to treat various diseases. In Indian traditional medicine system *Vitex negundo* Linn is referred as 'sarvaroganivarani'- the remedy for all diseases. A popular local name of the Bengali in the western Himalayan area of India. It is useful in many diseases and eliminates the disease with a brush. A lot of chemicals are found in *vitex negundo*. Nirgundi in Sanskrit means which protects the body from diseases. If you are considering using nirgundi root powder for varicose veins, it is important to speak with a healthcare professional to determine the best course of treatment for you. While nirgundi may have benefits for other conditions, there is not enough scientific evidence to support its use as a primary treatment for varicose veins. [9].

## 4. PUNARNAVA POWDER



Fig.5.

**Kingdom:** Plantae

**Family:** Nyctaginaceae

**Genus:** Boerhavia

**Species:** B. diffusa



It has understood the need of longevity and effectiveness to attain the supreme goal. Punarnava helps maintain efficient kidney and urinary functions with its diuretic, laxative, stomachic, diaphoretic, anthelmintic antispasmodic and anti-inflammatory action. According to Ayurveda, Punarnava is bitter, cooling, astringent to bowels, useful in biliousness, blood impurities, leucorrhoea, anaemia, inflammations, heart diseases, asthma, alternatives etc. The leaves are useful in dyspepsia, tumours, spleen enlargement and abdominal pains. Punarnava, also known as Boerhavia diffusa, is a plant that has been traditionally used in Ayurvedic medicine for its many therapeutic properties. While it has been suggested that Punarnava powder may have beneficial effects on varicose veins, there is limited scientific evidence to support this claim.

#### Some of the traditional uses of Punarnava powder include:

**Anti-inflammatory:** Punarnava powder is known for its anti-inflammatory properties and has been used to reduce inflammation in the body.

**Diuretic:** Punarnava powder is a natural diuretic, which means that it can help to increase urine output and remove excess fluid from the body. It may be used in the treatment of edema or swelling caused by fluid retention. [10].

#### 5. MANJISHTHA ROOT POWDER



Fig.6.

**Kingdom:** Plantae  
**Family:** Rubiaceae.  
**Genus:** Rubia  
**Species:** R.cordifolia

Manjistha (*Rubia cordifolia*.) commonly known as Indian Madder perineal, herbaceous, climbing belonging to family Rubiaceae. It is commonly occurring throughout hilly regions in India. Madder is used in Hindu medicine as a colouring agent; medicinal oils are boiled with Madder to give them colour. It is also useful external astringent and is applied to inflamed parts, ulcers, fractures etc. Manjistha - It has pleasant color, provides good color, appears very beautiful.

**Medicinal Uses:** Raktaprasdana, Raktashodhana, Varnya, Dipana, Pachana, krimighna, khaphaghna, artavajanana, stanyashodhana, vishaghna, jwaraghna, rasayana, shothaghna, vranaropana, mutrakara, atisaraghna, arshoghna, pramehaghna, kushthaghna, gharbhashaya uttejaka etc[11].

**Wound Healing Effect:** Wound Healing of a herbal formulation of *Rubia cordifolia* was done. emulsion formulation of herbal drug mixture of *R.cordifolia*, *C.asiatica*, *T.belerica*, *P.zeylanica*, and *W.somnifera* was formulated. Animals were inspected daily up to 20th days and healing was good and produces wound contraction, period of epithelization and histological study. It shows, that there is contraction and new epithelization of excision wound. and beneficial in blood disorders [12].

#### 6] DRIED MARIGOLD PETAL POWDER



Fig.7.

**Kingdom:** Plantae  
**Family:** Asteraceae  
**Genus:** Tagetes  
**Species:** Erecta

Skin disorders and wounds are generally defined based on the depth of injury, healing time, healing progression, underlying pathology, associated risk of mortality, and the effect on quality of life. Surgical and traumatic wounds, burns, radiation dermatitis, and abrasions (including scrapes and microdermabrasion) are considered acute wounds, while venous and arterial leg ulcers, fungating wounds, pressure ulcers, and diabetic ulcers are classified as chronic wounds. Healing time and sequence also delineates acute versus chronic wounds. In general, acute wounds can repair themselves in an orderly and timely manner unlike chronic wounds. *Calendula officinalis* with its high quantity of flavonoids, it can help to minimize inflammation and speed up the healing process. Vein-related disorders have become one of the most frequent chronic diseases amongst Americans – 50% of them are experiencing at least a minor case of chronic venous insufficiency – a condition of damaged vein valves and poor blood circulation that

typically results in varicose veins. Various factors affect the development of varicose veins: genetics, hormonal changes, increasing age, pregnancies, etc. and our current lifestyles of frequent sitting is not helping either.

When people first notice the symptoms of varicose veins, such as heavy and tired legs, swollen ankles, night cramps and discoloration, the tendency is to try out various over-the-counter medications or natural remedies rather than seek medical attention. The market is now flooded with a plethora of natural creams, teas and tablets and it is becoming increasingly hard to decide what is worth trying. That's why we are going to look into one specific natural remedy recommended for vein-related issues – marigold [13].

## 7. COFFEE POWDER



Fig.8.

**Kingdom:** Plantae  
**Family:** Rubiaceae  
**Genus :** Coffea L.  
**Species:** Coffea arabica

Coffee powder can be used as an effective exfoliating agent in scrubs for the skin. The coarse texture of coffee powder makes it an ideal ingredient for removing dead skin cells, dirt, and oil from the surface of the skin.

Coffee is also rich in antioxidants, which can help to protect the skin from damage caused by free radicals. In addition, caffeine is a natural vasoconstrictor, meaning that it can temporarily narrow blood vessels and reduce inflammation, making it a good choice for reducing the appearance of puffiness and dark circles under the eyes.

To make a coffee scrub, simply mix together ground coffee beans with a carrier oil such as coconut oil or olive oil. Massage the mixture onto damp skin in circular motions, focusing on areas that are particularly rough or dry. Rinse off with warm water and pat dry.

It is important to note that while coffee scrubs can be beneficial for exfoliating and improving the texture and appearance of the skin, they should be used with caution in individuals with sensitive skin, as the coarse texture of the coffee grounds may cause irritation.

**exfoliates:** coffee grounds don't dissolve when added to water. this makes them perfect being the main ingredient in exfoliating scrubs. the removal of dead skin. caffeine can constrict blood vessels and elevate blood pressure. prolonged, elevated blood pressure can place increased strain on your veins. helps reduce cellulite: the caffeine in coffee helps promote better blood flow and when used as a scrub in areas where cellulite may be present can reduce the fat deposits and leave skin looking firmer. the caffeine in a coffee scrub acts as a vascular restrictor--shrinking blood vessels, thus helping to reduce varicose veins. it reduces inflammation it improves blood circulation it removes dead skin cells it prevents premature aging it reduces the appearance of cellulite it depuffs swollen areas it helps reduce body acne. [14].

## 7. Vit. E

While there are several natural remedies that may help relieve the symptoms of varicose veins, there is limited scientific research on the effectiveness of topical treatments such as scrubs. However, some studies have shown that vitamin E may help improve blood circulation and reduce inflammation. While these studies suggest that vitamin E may be beneficial for improving blood circulation and reducing inflammation, more research is needed to determine its effectiveness specifically for varicose veins and the use of scrubs for this purpose. Anti-inflammatory effects: Vitamin E is known for its anti-inflammatory properties, which can help reduce swelling and inflammation in the affected veins.

**Anti-inflammatory effects:** Vitamin E is known for its anti-inflammatory properties, which can help reduce swelling and inflammation in the affected veins.

**Improved circulation:** Vitamin E may also help improve blood flow and circulation, which can reduce the pressure on the veins and relieve symptoms.

**Skin health:** Vitamin E is beneficial for skin health and can help reduce the appearance of varicose veins by improving the skin's elasticity and reducing the appearance of spider veins.

**Antioxidant properties:** Vitamin E is a powerful antioxidant that can help protect the veins from damage caused by free radicals [15].

## 8. SESAME OIL



Fig.9

**Kingdom:** Plantae  
**Family:** Pedaliaceae  
**Genus:** Sesamum  
**Species:** *S.indicum*

Sesame oil has been traditionally used for various medicinal purposes, including the treatment of varicose veins. While there is limited scientific research on the effectiveness of sesame oil for varicose veins, some studies have suggested its potential benefits.

One study published in the Journal of Ayurveda and Integrative Medicine found that topical application of sesame oil was effective in reducing pain, swelling, and itching associated with varicose veins. The study also found that sesame oil improved blood flow in the affected area, which may help to reduce the appearance of varicose veins over time.

Another study published in the Journal of Medicinal Food found that sesame oil contains compounds that have anti-inflammatory and antioxidant properties, which may help to reduce inflammation and promote healing in the veins.

While these studies provide some evidence of the potential benefits of sesame oil for varicose veins, more research is needed to fully understand its effectiveness and safety.

Overall, sesame oil may be worth considering as a complementary treatment for varicose veins, but it should not be used as a substitute for medical treatment or advice. If you are considering using sesame oil for varicose veins, it is important to talk to your doctor first to ensure that it is safe and appropriate for you.

**Massage Oil:** Sesame oil is commonly used as a base oil for massage because it is easily absorbed into the skin and has a warming effect that can help relax muscles and improve circulation [16].

## 9. ROSEMARY ESSENTIAL OIL



**Fig.10**

**Kingdom:** Plantae  
**Family:** Lamiaceae  
**Genus:** *Salvia*  
**Species:** *S.rosmarinus*

Rosemary essential oil is known for its anti-inflammatory and circulation-stimulating properties, which may be beneficial for reducing the appearance

of varicose veins. Varicose veins are a common condition that affects many people worldwide. They occur when the veins become swollen and twisted, often causing discomfort and pain. Rosemary essential oil is one of the essential oils that have been studied for its potential therapeutic effects on varicose veins. Here are some of the uses of rosemary essential oil for varicose veins treatment:

**Reduces inflammation:** Rosemary essential oil has anti-inflammatory properties that can help reduce the inflammation associated with varicose veins. This can help relieve pain and discomfort associated with this condition.

**Improves blood circulation:** Rosemary essential oil has been shown to improve blood circulation, which can help reduce the appearance of varicose veins. Improved blood circulation can also help relieve pain and discomfort associated with this condition.

**Acts as a natural diuretic:** Rosemary essential oil has diuretic properties that can help reduce fluid retention, which is a common symptom of varicose veins. This can help reduce swelling and discomfort associated with this condition.

**Relieves pain:** Rosemary essential oil has analgesic properties that can help relieve pain associated with varicose veins. This can help improve the quality of life of people suffering from this condition.

**Promotes relaxation:** Rosemary essential oil has a soothing and relaxing effect on the body, which can help reduce stress and anxiety associated with varicose veins. This can help improve overall well-being and quality of life.

To use rosemary essential oil for varicose veins treatment, it can be diluted with a carrier oil such as coconut or olive oil and applied topically to the affected area. It can also be added to a warm bath for a relaxing and soothing effect. It is important to note that essential oils should be used with caution and under the guidance of a healthcare professional, especially for people with underlying medical conditions or allergies [17].

## 10. BEES WAX



**Fig.11.**



White beeswax is a natural wax produced by honeybees. It is commonly used in cosmetics and personal care products as a thickening agent, emulsifier, and moisturizer. In the preparation of polyherbal scrubs, white beeswax can be used to provide texture and emulsify the ingredients, as well as to provide moisturizing benefits to the skin [18].

### 11. LIQUID PARAFFIN



Fig.12.

Liquid paraffin is commonly used as an ingredient in the preparation of polyherbal scrubs. Polyherbal scrubs are cosmetic products that are used for exfoliating and moisturizing the skin. The use of liquid paraffin in polyherbal scrubs helps to improve the texture of the product and provides moisturizing benefits to the skin.

Liquid paraffin is a colorless and odorless liquid that is derived from petroleum. It is a highly refined mineral oil that is used in many cosmetic and personal care products due to its ability to moisturize and protect the skin. In polyherbal scrubs, liquid paraffin helps to moisturize and soften the skin, while also helping to exfoliate dead skin cells. The poly herbal scrub containing liquid paraffin exhibited good physical and chemical properties and remained stable over the three-month study period. The authors concluded that liquid paraffin is a suitable ingredient for use in poly herbal scrubs and can help improve the texture and moisturizing properties of the final product [19].

### 12.BORAX



Fig.13

Borax is used in lotions and creams. Borax is combined with wax to improve the consistency of lotions and creams. It also works as an emulsifier when used with wax and it is mostly used in hand soaps. It is excellent ingredient used for cleaning as it's alkaline in nature [20].

### 13. METHYL PARABEN



Fig.14.

It acts as preservatives. Methyl paraben is a commonly used preservative in many cosmetic products, including polyherbal scrubs. Its primary function in a polyherbal scrub is to prevent the growth of harmful bacteria and other microorganisms that can spoil the product over time.

Polyherbal scrubs are typically made from a combination of natural ingredients, such as herbs, spices, and oils, that are used to exfoliate and nourish the skin. However, these natural ingredients can also provide an ideal environment for the growth of microorganisms, which can lead to spoilage and potential health risks.

By adding methyl paraben to the formulation, the shelf life of the polyherbal scrub can be extended, and the risk of spoilage can be significantly reduced. This helps to ensure that the product remains safe and effective for use over an extended period of time.

### EVALUATION PARAMETERS:

#### Organoleptic Evaluation parameter for polyherbal scrub:

##### Appearance:

**Colour:** brown colour of polyherbal scrub was observed by visual examination.

**Odour:** Odour found to be characteristics. Sweet and simple syrup like odour.

**State:** Semisolid state of scrub observed by visually [21].

#### Physicochemical Evaluation parameter for polyherbal scrub:

**Consistency:** Consistency was found to be smooth with visual observation.

**Homogeneity:** Homogeneity of the formulation was inspected visually.

#### PH:



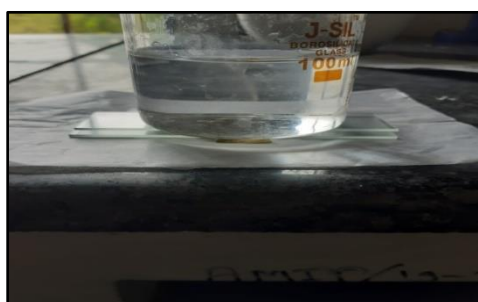
**Fig. 15. Digital pH Meter.**

The pH of the scrub is determined by using digital pH meter.

The pH of scrub was found to be 6.66

The standard range of pH of scrub should be in range of 5.7-7.0 [22].

#### Determination of spreadability of scrub:



**Fig16.**

#### Beaker and Glass Slide

- Two glass slides are taken.
- 1gm sample placed on glass slide and another slide was placed above them.
- 100gm of weight was placed on the slide.
- The time taken for the scrub spread on the slide [23].

formula:  $S = m \times l/t$ .  $S$  = Spreadability.  $m$  = Weight placed on slide(100gm).  $l$  = Length of the glass slide(4.1cm).  $t$  = Time taken in seconds(61sec)  $S = 100 \times 4.1/61$ . = 6.72g.cm/sec.

#### Irritability:

Small amount of the scrub was applied on the skin and kept for few minutes and found to be non-irritant [24].

#### Washability:

Little quantity of scrub was applied over the skin and washed with water [25].

#### Viscosity by using Ostwald Viscometer:



**Fig 17.**

#### Ostwald Viscometer

Determination of density of sample.

$$\rho_2 = \frac{w_3 - w_1}{w_2 - w_1} = \underline{1.0044 \text{ g/ml.}}$$

Where,  $W_1$  = Weight of empty gravity bottle.

$W_2$  = Weight of gravity bottle + Distilled water.

$W_3$  = Weight of gravity bottle + Sample liquid.

$$\text{Viscosity of sample } (\eta_2) = \frac{\rho_2 t_2}{\rho_1 t_1} \times \eta_1 = \underline{0.866 \text{ cp}}$$

Where,  $\rho_1$  = Density of water (0.997g/ml standard value)

$\rho_2$  = Density of scrub sample (1.0044 g/ml.)

$\eta_1$  = Viscosity of water. (0.890cp Standard value)

$\eta_2$  = Viscosity of scrub sample.

$t_1$  = Mean time of flow of water from A to B (18.97 sec)

$t_2$  = Mean time of flow of scrub sample from A to B (18.34 sec) [26].

#### Extrudability:

Extrudability was determined by the time required by sample to completely extrude from the container, i.e. Sample amount/ time required.

#### Grittiness:

Exfoliants need to abrasive property so Coffee powdered and pass through sieve then this preparation.so it has gritty particles observed [27].

#### Stability study:

The formulation was stored at different temperature conditions for a period of 10 days and evaluated for parameters like colour, odour, pH, and consistency.

#### BATCH OPTIMIZATION:

**TABLE NO: 2 FORMULATIONS OF POLYHERBAL SCRUB.**

SR.NO.	INGREDIENTS	BATCH A	BATCH B	BATCH C
		QUANTITY FOR 20 GM	QUANTITY FOR 30 GM	QUANTITY FOR 40 GM.
1	Sunth powder	0.50 gm	0.50 gm	0.50 gm
2	Multani mitti	05 gm	05 gm	05 gm
3	Nirgundi Root Powder	1.25 gm	1.25 gm	1.25 gm
4	Punarnava powder	0.50 gm	0.50 gm	0.50 gm
5	Manjishtha Root Powder	0.50 gm	0.50 gm	0.50 gm
6	Dried Marigold Petal Powder	0.50 gm	0.50 gm	0.50 gm
7	Coffee	0.50 gm	0.50 gm	0.50 gm
8	Vit.E	1 gm	1 gm	1 gm
9	Sesame oil	1 gm	1 gm	1 gm
10	Rosemary Essential oil	Q.S	Q.S	Q.S
	For cream base			
11	Bees wax	1.6	3.2gm	4.8
12	Liquid Paraffin	5.0 gm	10 gm	15 gm
13	Borax	0.08 gm	0.16 gm	0.24 gm
14	Methyl Paraben	0.18 gm	0.36 gm	0.54 gm
15	Propyl paraben	0.02 gm	0.04 gm	0.06 gm
16	Distilled Water	3.3gm	6.6 gm	9.9 gm
17	Perfume	Q.S	Q.S	Q.S

#### RESULT AND DISCUSSION:

Preparation of polyherbal scrub formulation for the management of varicose veins. following batches are optimized. Preparation of 40 gm polyherbal scrub. 10 gm medicament and 30 gm cream base.

#### BATCH A: OPTIMIZATION DATA.

**Ingredients:** 10 gm drugs and 10 gm cream base used for the preparation of polyherbal scrub.

**Observation:** Consistency is not good.

**Result:** Batch Optimization needed.

#### BATCH B: OPTIMIZATION DATA.

**Ingredients:** 10 gm drugs and 20 gm cream base used for the preparation of polyherbal scrub.

**Observation:** Slightly good Consistency.

**Result:** More Batch Optimization needed.

#### BATCH C: OPTIMIZATION DATA.

**Ingredients:** 10 gm drugs and 30 gm cream base used for the preparation of polyherbal scrub.

**Observation:** very good Consistency.

**Result:** Batch optimized and very good consistency.

**TABLE NO: 3. FINAL BATCH OPTIMIZATION DATA:**

SR.NO.	QUANTITY	FINAL BATCH DATA
1	Sunth powder	0.50 gm
2	Multani mitti	05 gm
3	Nirgundi Root Powder	1.25 gm
4	Punarnava powder	0.50 gm
5	Manjishtha Root Powder	0.50 gm
6	Dried Marigold Petal Powder	0.50 gm
7	Coffee	0.50 gm
8	Vit.E	1 gm
9	Sesame oil	1 gm
10	Rosemary Essential oil	Q.S
11	Bees wax	4.8
12	Liquid Paraffin	15 gm
13	Borax	0.24 gm
14	Methyl Paraben	0.54 gm
15	Propyl paraben	0.06 gm
16	Distilled Water	9.9 gm
17	Perfume	Q S

**TABLE NO: 4 PHYSICOCHEMICAL PARAMETERS**

Sr. No.	Physicochemical Parameter	Observation
01	Colour	brown
02	Odour	Characteristics/pleasant
03	Consistency/Texture	Smooth,very good
04	pH	6.66
05	Stability	Stable at different temperature.
06	Solubility	Soluble in boiling water and alcohol
07	Irritability	Non-irritant.
08	Spreadability	uniform
09	Viscosity	0.866cp
10	Grittiness	Small gritty partical

#### CONCLUSION:

In conclusion, the use of scrubs for varicose veins treatment can provide a natural and effective way to reduce inflammation, improve blood circulation, and enhance the appearance of the skin. By using simple ingredients and following a regular skincare routine, individuals with varicose veins can improve their condition and feel more confident in their skin. The polyherbal scrub for the treatment of varicose veins was successfully prepared using natural ingredients. The herbs used in the formulation have been traditionally used for the treatment of varicose veins and have a good safety profile.



The polyherbal scrub was found to be stable and safe for use, making it an ideal alternative to expensive and potentially harmful treatments. The use of this polyherbal scrub can alleviate the symptoms associated with varicose veins, such as pain and discomfort, and improve the overall appearance of the affected area.

The polyherbal scrub is easy to prepare and effective in alleviating the symptoms associated with varicose veins. It has the potential to improve the quality of life of people suffering from varicose veins without the side effects associated with conventional treatments.

Further research is needed to evaluate the long-term efficacy of this polyherbal scrub in the treatment of varicose veins. However, based on the results of this study, the polyherbal scrub appears to be a promising alternative for the treatment of varicose veins.

## REFERENCES:

- 1] Deepali Mor and Payal Dande, varicose veins: an overview of current and herbal treatments, International Journal of Pharmaceutical Sciences and Research, 2017; Vol. 8(5): 1959-1966. E-ISSN: 0975-8232; P-ISSN: 2320-5148.
- 2] Akoijam Sangita Devi , Malar Kodi Aathi, Prevention of Varicose Veins, Journal of Nursing Science & Practice, ISSN: 2249 – 4758 Volume 4, Issue 1 [www.stmjournals.com](http://www.stmjournals.com).
- 3] The vein Institute. All you need to know about Varicose Veins & its treatments Book. [https://cdn2.hubspot.net/hubfs/4376989/The%20Vein%20Institute %20ebook-%20final%20version%20.pdf](https://cdn2.hubspot.net/hubfs/4376989/The%20Vein%20Institute%20ebook-%20final%20version%20.pdf).
- 4] Rutuja Prashant Nangare, Trupti Ashok Thange. Formulation and Evaluation of Polyherbal Facial Scrub, International Journal of Research Publication and Reviews, Vol 3, no 6, pp 3439-3448, June 2022.
- 5] Mithal BM, Saha RN. A Handbook of Cosmetics, 1st edn, Vallabh Prakashan, 2000.
- 6] Pawar HA, Choudhary PD , Gavasane AJ , Malusare V and Shinde P. Standardization of Sunth Powder Prepared Using Rhizomes of Zingiber officinales, Pawar et al., Med Aromat Plants 2015, 4:5 <http://dx.doi.org/10.4172/2167-0412.1000216>.
- 7] Neeru Bhatt, Mostafa I. Waly, Mohamed M Essa, and Amanat Ali, GINGER: A FUNCTIONAL HERB, See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/257416254>.
- 8] Ghadage P. K., Mahamuni S. S., Kachare D. S, Formulation and Evaluation of Herbal Scrub using Tamarind Peel, <https://rjtcsonline.com/Issues.aspx?VID=12&IID=1>.
- 9] Singh Y, Mishra P, Kannoja P, Morphology, Phytochemistry and Pharmacological Activity of Vitex negundo: An Overview , Journal of Drug

Delivery and Therapeutics. 2020; 10(3-s):280-285 <http://dx.doi.org/10.22270/jddt.v10i3-s.4173>.

10] Debjit Bhowmik , K.P. Sampath Kumar, Shweta Srivastava , Shravan Paswan , Amit Sankar , Dutta Dutta. Traditional Indian Herbs Punarnava and Its Medicinal Importance, Journal of Pharmacognosy and Phytochemistry, ISSN 2278-4136 Online Available at [www.phytojournal.com](http://www.phytojournal.com).

11] Dr. Abhijeet D. Kumbhar, Dr. Shamal S. Naikare. Medicinal Plant Review: Manjistha (Rubia cordifolia), IJCRT1872440 International Journal of Creative Research Thoughts (IJCRT) [www.ijcrt.org](http://www.ijcrt.org).

12] Dr. Bharti Sadabal, Dr. T.A.Pansare, and Dr Sachin Govindrao Tike. a comprehensive review on manjistha (rubia cordifolia l.) with special reference to ayurvedic and modern aspect. International Journal of Recent Scientific Research Vol. 11, Issue, 04 (A), pp. 37958-37968, April, 2020.

13] Bhargab Deka , Bedanta Bhattacharjee , Anshul Shakya , Abu Md Ashif Iqbal , Chayanika Goswami , Santa Sarma. Mechanism of Action of Wound Healing Activity of Calendula officinalis: A Comprehensive Review, Pharmaceutical and Biosciences Journal Vol. 9(1), 28-44, 2021.

14] Rutuja Prashant Nangare , Trupti Ashok Thange. Formulation and Evaluation of Polyherbal Facial Scrub. International Journal of Research Publication and Reviews, Vol 3, no 6, pp 3439-3448, June 2022.

15] Kouris-Blazos A, Belski R, Singh H. Effects of a Nutrient Intervention on Microvascular Dysfunction in Overweight and Obese Adults. Int J Vasc Med. 2019;2019:9629106. doi:10.1155/2019/9629106.

16] Singh S, et al. (2013). Evaluation of the efficacy of Sesame oil in primary management of varicose veins: A pilot clinical trial. Journal of Ayurveda and Integrative Medicine, 4(1), 43-46.

17] Gok Metin Z, Ozdemir L. The effect of rosemary oil massage on the symptoms of varicosity in women. Int J Prev Med. 2013 Mar;4(3):345-52.

18] Jadhav, V., & Gholve, S. (2012). Formulation and evaluation of herbal scrub gel. International Journal of Pharmacy and Pharmaceutical Sciences, 4(3), 536-540.

19] Priya K, Dhanabal SP. Development and Evaluation of Polyherbal Scrub. International Journal of Pharmaceutical Sciences and Research. 2013;4(11):4266-4271.

20] Sinha P, Srivastava S, Mishra P, Yadav P, Tripathi Y B. Formulation and evaluation of a polyherbal cream for the treatment of varicose veins. Journal of Ayurveda and Integrative Medicine. 2016;7(1):12-18.

21] J. Prathyusha, N.S. Yamani, G. Santosh, A. Arvind, B. Naresh : Formulation and evaluation of polyherbal face scrubber for oily skin in gel form, National general of pharmaceutical science and drug research 2019; 11(4):126-128.

22] Esha Vatsa, Mehak Aggarwal, Shipra Gautam. Formulation and Evaluation of Polyherbal Facial

Scrub, Vol.1 Issue-9, MAY 2021 (e-ISSN: 2582-8223).

23] Ashawat, M. S., Banchhor, M., Saraf S. and Saraf, S. (2009). Herbal Cosmetics: Trends in Skin Care Formulation. Pharmacognosy Review. 3 (5):82-89.

24] Chaudhari, V. A., Girase, M. V., Borase, B. G., Kailas, S. and Chaudhari, K. A. (2020). Formulation and Evaluation of Multipurpose Herbal Scrub in Gel Form Using Limonia acidissima. International Journal of Research and Analytical Review. 7 (2):637-649.

25] Fatima, Grace X., Anbarasan B., Kanimozhi T. and Shanmuganathan S., 2018 Preparation And Evaluation Of Deep Cleansing Exfoliator, Asian Journal Of Pharmaceutical And Clinical Research, 11 (7), Page no. 356-359.

26] Pawar DN, Pawar AP, Dalvi YV. Formulation and Evaluation of Herbal Scrub Gel. Research Journal of Topical and Cosmetic Sciences. 2019;10(1):13-8.

27] Mr. Vishal Ashok Chaudhari, Dr. Manoj V. Girase, Mr. Bhushan Gulab Borase, Mr. Shashikant Kailas Bhoi, Miss. Kalyani Ashok Chaudhari : Formulation and Evaluation of Multipurpose Herbal Scrub In Gel Form Using Limonia Acidissima, International Journal Of Research and Analytical Reviews 2020;7(2).