IJPSR (2024), Volume 15, Issue 3 (Review Article)

INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES AND RESEARCH

Received on 08 July 2023; received in revised form, 30 April 2024; accepted, 17 May 2024; Published 01 June 2024

HERBAL PLANTS USED IN VARICOSE VEINS

Sunanda Dattatray Malode [*1], Komal P. Mahajan [2], Priyanka Suresh Pagar [3], Sulochana Sonya Gavit [1] and Anjali Kantilal Raut [1]

Department of Pharmacognosy [1], Department of Pharmacology [2], Department of Pharmaceutics [3], K. K. Wagh College of Pharmacy, Nashik - 422003, Maharashtra, India.

Keywords:

Herbal Plants, Pathophysiology, Varicose veins, Treatment, *Centella asiatica*

Correspondence to Author:
Sunanda Dattatray Malode

Assistant Professor,
Department of Pharmacognosy,
K. K. Wagh College of Pharmacy,
Nashik - 422003, Maharashtra, India.

E-mail: sunandamalode93@gmail.com

ABSTRACT: Varicose vein is a clinical class of Chronic Venous Disease also called the varicosites. Varicose veins are enlarged, swollen and twisting veins often appearing blue or dark purple. It is more common in women than men, superficial veins of the leg are under high pressure, hence this disorder is mostly seen in the leg. The pathophysiology includes genetic components, dysfunctional valves, and weak vascular walls. In order for conservative treatments like diet, dietary, and hydrotherapy to be effective, a high level of patient compliance is needed. Interventional therapies like surgery are also used to treat varicose veins. Although varicose veins are not considered an imminent threat to life, they may interfere with regular activities and develop gradually. As a result, the current review critically assesses the possible utility of herbal medication in the treatment of varicose veins.

INTRODUCTION: Varicose veins are tortuous, enlarged, palpable, usually blue or dark purple in the subcutaneous tissues of the legs, ankle and are often easily visible. All these veins contain one-way valves to ensure that the blood flows towards the heart, when their valves are usually incompetent so that reflux of blood occurs, and it results in venus hypertension, which can cause symptoms [1]. Although many people have varicose veins, few seek treatment because most people with varicose veins are asymptomatic. At least one-third of the population is thought to have varicose veins in their lower limbs.

QUICK RESPONSE CODE

DOI: 10.13040/IJPSR.0975-8232.15(6).1627-38

This article can be accessed online on www.ijpsr.com

DOI link: https://doi.org/10.13040/IJPSR.0975-8232.15(6).1627-38

The National Health Service still performed 40,000 operations were carried out in the UK in 2011, costing an estimated $30 to $25 million (excluding non-hospital costs) thus need a lot of medical resources [2]. It primarily affects 10–20% of the global population, with 5% of that in India. According to ayurvedic literature, *Sirajagranthi* affects both men and women. ," where "*Siraja*" denotes the veins and tubular structures involved in blood flow and "*Granthi*" denotes an inflammation resembling a cyst-like enlargement.

FIG. 1: VARICOSE VEINS

Varicose veins are caused by ineffective valves. Varicose veins are also caused by prolonged standing, obesity, childbirth, old age, and athletes. The main course of treatment for *Sirajagranthi* is *Raktamokshana*. According to Ayurvedic scriptures, *Raktamokshana* is divided into *Sringa*, *Jalauka*, *Alabu*, *Siravedha*, *Pracchana*, and *Ghati Yantra* categories [3]. Due of *Jalaukavacharana's* great success rate in treating blood-related diseases, it is regarded as the ultimate therapy [4].

Pathophisiology: The main causes of venous hypertension include venous valve dysfunction, structural changes in the vein wall, inflammation, and changes in shear stress. Varicose veins are caused by pathophysiological processes. Venous hypertension is brought on by reflux due to venous valvular dysfunction, venous inflow blockage or calf muscle pressure failure venous reflux, which causes venous insufficiency, can affect either the superficial or deep venous systems.

Under the venous region, hypertension valvular inefficiency in individuals with high level of perforator vein incompetence deep vein pressures that are produced the contraction of the calf muscle may be direct transmission to the outermost valves. Vein wall structural alterations bring about pathological deterioration and dilating as a result. Overproduction reduced production of type I collagen disruption of type III collagen, and how smooth muscle fibres are arranged elastin fibres as well as have been seen in varicose venous histological studies [5].

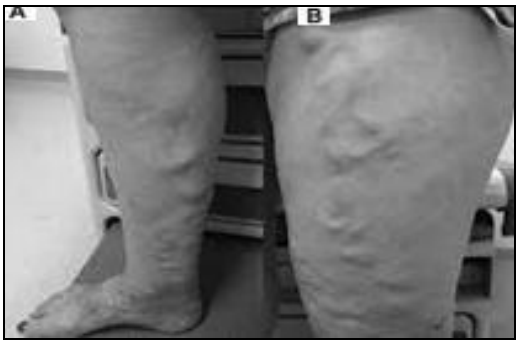


FIG. 2: VARICOSE VEINS

According to *Acharya Sushruta*, vata-aggravating etiological causes contribute to the vitiation of Vata, which has an impact on the *Sira Prathana* (cluster of organs veins), introducing them to *Sampeedana* (a compress- (squeezes), *Sankochana*, and *Vishoshana* (dryness) and creates *Granthi*. In Acharya's viewpoint Vagbhata, the vitiated Vata, has an impact on *Raktadhatu* and *Siras*, who caused *Sampeedana* veins that contribute to local venous congestion. Jalauka's repeated bloodletting, which relieves local congestion, takes down the *Shotha* and Shoola. Jalauka, which is a sheet in nature, also alleviates daha (the burning sensation). *Sahacharadi Thailam* is used to treat illnesses linked to vata.

FIG. 3: VARICOSE VEINS

Vata-related diseases should be treated with basti because vata is the cause of varicose veins. Varicose veins can be controlled by treating vata in the body. *Snehana* and *Swedana*, which improve circulation in that region, are further therapy possibilities. The assumption that valve failure in the superficial veins results in venous reflux and vein dilatation, which causes varicose veins, has superseded the notion that valve failure in the superficial incapability develops with a shift in the vein wall, rather than it was before. So, with varicose veins, the venous wall is inherently weak, leading to valve dilatation and separation causing them to lose their value. The cause of varicose veins is by becoming older, parity, and occupations that require a much standing. There is no evidence to suggest that the frequency of social class, smoking, or obesity are all risk factors for varicose veins [6].

Anatomy: A network of superficial veins connects to the deep veins via small perforator veins to provide venous drainage to the lower limbs. Varicose veins can be caused by disease in any of these venous systems, but the number of systems affected increases the severity of the symptoms. The vein wall weakens due to a variety of pathophysiological causes, resulting in varicosity over time.

Varicosities are most commonly found in the larger and smaller saphenous veins, but they can also appear in branch channels. Varicose veins can be caused by obstruction of the iliac veins or inferior vena cava [7, 8].

Principle:

1. The principal pathophysiological mechanisms that cause varicose veins are venous hypertension, venous valvular incompetence, structural changes in the vein wall, inflammation, and changes in shear stress.
2. Reflux due to venous valve incompetence, venous outflow blockage, or calf-muscle pump failure causes venous hypertension. Venous reflux can affect either the superficial or deep venous systems, causing venous hypertension below the venous valvular incompetence area.
3. High pressures venous valve incompetence, venous outflow blockage, or calf-muscle pump failure causes venous hypertension. Venous reflux can affect either the superficial or deep venous systems, causing venous hypertension below the venous valvular incompetence area. generated in the deep veins during calf muscle contraction may be immediately conveyed to the superficial system in patients with perforator vein incompetence.
4. Valve leaflet deformation, tearing, thinning, and adhesion can lead to valve incompetence. The structural alterations in the vein wall are what lead to pathological weakness and dilatation.
5. In histological examinations of varicose venous segments, overproduction of collagen type I, decreased synthesis of collagen type III, and disturbance of the organisation of smooth muscle cells and elastin fibres were found. Increased tissue inhibitors of matrix metalloproteinases found in varicose vein specimens may enhance extracellular matrix material deposition in the vein wall.
6. In the walls of varicose veins, higher amounts of transforming growth factor 1 and fibroblast growth factor have been found, which may contribute to structural degeneration.
7. The number of neutrophils, monocytes, macrophages, and lymphocytes, as well as the levels of matrix metalloproteinases, rose in venous valves exposed to high pressures for extended periods of time in animal models.
8. The venous valves exposed to high pressures had unfavourable remodelling over time, with reduced leaflet length and thickness. Turbulent flow, flow reversal, and reduced shear stress promote inflammatory and prothrombotic alterations, which may lead to the loss of structural and functional integrity of vein walls and valve leaflets [9, 10].

Type of Varicose Vein:

Different type of varicose vein present in legs

1. Trunk varicose veins
2. Varicosite of extremities
3. Reticular varicose veins
4. Telangiectasia varicose vein
5. Spider vein

1. Trunk Varicose Veins: Truncal veins (or systematized veins) include the great and small saphenous veins, the anterior accessory saphenous vein, and the Giacomini vein (intersaphenous). The non-systematized veins include the non-truncal superficial venous system, which is located subcutaneously and has a reticular appearance.

Truncal veins (or systematized veins) include the great and small saphenous veins, the anterior accessory saphenous vein, and the Giacomini vein (intersaphenous). The non-systematized veins include the non-truncal superficial venous system, which is located subcutaneously and has a reticular appearance.

FIG. 4: TRUNK VARICOSE VEINS

Varicosite of Extremities: Varicose veins are twisted, enlarged veins. Any vein that is close to

the skin's surface (superficial) can become varicosed. Varicose veins most commonly affect the veins in the legs. That's because standing and walking increase the pressure in the veins of the lower body.

FIG. 5: VARICOSITE OF EXTREMITIES

Reticular Varicose Veins: Reticular veins are the visible veins below your skin that appear blue purple in colour, but they don't bulge out as varicose veins do. Reticular veins are smaller than varicose veins but often appear together with them, the feeder vein smaller spider veins, causing pain and symptoms just like varicose veins do.

FIG. 6: RETICULAR VARICOSE VEINS

Telangiectasia Varicose Vein: They often appear as fine pink or red lines, which temporarily whiten when pressed. "Matted" telangiectasias are clusters of these small, dilated blood vessels that form a pink or red patch on the skin. Individuals who are otherwise healthy can develop this condition, and it is sometimes associated with varicose veins.

FIG. 7: TELANGIECTASIA VARICOSE VEIN

Spider Vein: Due to vascular damage or weakening, spider veins and varicose veins develop. Although larger varicose veins are more common, both are visually noticeable. Red, purple, or blue spider veins are all possible. They could show up as fine lines, webs, or branches. They are also occasionally referred to as thread veins. Most of the time, they are not painful nor hazardous, although some people might want to have them treated for aesthetic purposes.

FIG. 8: SPIDER VEIN

Causes: Varicose veins occur when veins aren't functioning properly. Veins have one-way valves that prevent blood from flowing backward. When these valves fail, blood begins to collect in the veins rather than continuing toward your heart. The veins then become enlarge. Varicose veins often affect the legs. The veins there are the farthest from your heart, and gravity makes it harder for the blood to flow upward.

Some potential causes for varicose veins include:

- pregnancy
- menopause
- age over 50
- standing for long periods of time
- obesity
- family history of varicose veins
- Athelets

Sign and Symptoms of Varicose Veins:

- Popular dark blue blood vessels, particularly in the legs and feet.
- Ongoing suffering or devotion along the vein's path.
- Legs are easily fatigued.

- The affected area feels heavy.
- Intolerance to exercise.
- Surface varicose veins are identified by bulging, rope-like, bluish veins.
- Discolored, peeling skin, skin ulcers and constant rather than intermittent pain are signs of severe varicose veins.
- Subjective symptoms usually are more severe early in the progression of the disease, less severe in the middle.
- Phases, and worse again with advancing age.
- Common symptoms of telangiectasia include burning, swelling, throbbling, cramping and leg fatigue. Pain
- Associated with varicocele usually is a dull ache that is worse after prolonged standing.
- Pain and other symptoms may worsen with the menstrual cycle, with pregnancy and in response to exogenous.
- Hormonal therapy swelling in the area that was harmed.
- Skin turning darker.
- Numbness in the scrotum or legs.
- Rashes on the legs or scrotum that itches or irritates.
- Burning sensations.
- Night pains.
- Pigmentation

Complications of Untreated Varicose Veins:

(1) Phlebitis (inflammation)

(2) Blood clots (actually in very rare complications)

(3) Varicose eczema

(4) Bleeding and venous ulcers

(5) Deep vein thrombosis

Treatment: The traditional treatments for varicose veins included compression therapies- use of special type of compression stockings and socks and surgeries- vein stripping, cryosurgery and ambulatory phlebectomy.

But presently there are more effective non-surgical techniques which help healing varicose veins better and sooner. These treatments include Sclerotherapy or Foam Sclerotherapy and Endothermal Ablation [11].

There are plenty of natural therapies available for the treatment of varicose veins. This mainly includes horse chestnut seed extract, *Centella asiatica*, apple cider vinegar, Butcher's broom, garlic, amla, grape seed extract, citrus fruits, *etc*. The aim of this article is to introduce the prevention and cure of varicose veins using Natural Drug Therapies rather than undergoing the other tricky treatments.

Treatments of varicose veins –overview

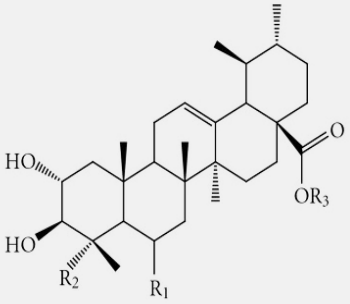
Natural Treatment Gotu kola	Physical Therapy Yogasan	Compression Therapy Compression stockings	Surgical Treatment Vein Stripping	Non-Surgical Treatment Sclerotherapy
Horse chestnut	Exercises		Ambulatory phlebectomy	Ultrasound guided foam sclerotherapy
Garlic	Walking			Radiofrequency Ablation
Citrus fruit	Swimming			Endovenous Ablation
Apple cider vinegar	Massage therapy			
Butcher's broom				
Tomato				
Ginger				

Herbal Plants used in Varicose Vein:

Gotu kola: Gotu kola has also been used to treat syphilis, hepatitis, stomach ulcers, mental fatigue, epilepsy, diarrhoea, fever, and asthma.

Today, in the U.S. and Europe gotu kola is most often used to treat varicose veins and chronic venous insufficiency, a condition where blood pools in the legs.

FIG. 9: GOTU KOLA LEAVES

Sr. no.	Parameters	Details
1	Botanical names	*Centella asiatica* (L.) Family: Apiaceae
2	Common name	Commonly known as Mandukparni or Indian pennywort or Jalbrahmi
3	Occurrence	India, Japan , China, Indonesia , South Africa, Shri Lanka.
4	Part of plants possessing therapeutic activity	Whole plant
5	Chemical constituents	

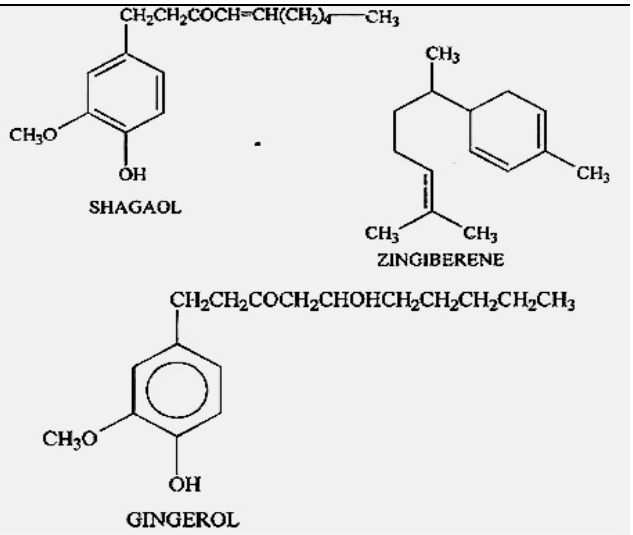
	R_1	R_2	R_3
Asiatic acid	H	CH_2OH	H
Madecassic acid	OH	CH_2OH	H
Madasiatic acid	OH	CH_3	H
Asiaticoside	H	CH_2OH	Glucose-glucose-rhamnose
Madecassoside	OH	CH_2OH	Glucose-glucose-rhamnose

6	Mechanism of action	Anti-inflammatory, diurectic, laxative, antiseptic, stimulant, heals wound and ulcers, improve memory, sluggish digestion, leprosy, skin eruptions, varicose veins, improve capillary permeability, ulcers, fever

Ginger: Ginger has the ability to improve circulation by dissolving fibrin that pools in blood vessel. Ginger may have anti-bacterial, antifungal and antiviral activities. The growth inhibition of various microbes may be attributed to biological mechanisms, including the suppression of the biofilm formation that is integral to antimicrobial resistance [5].

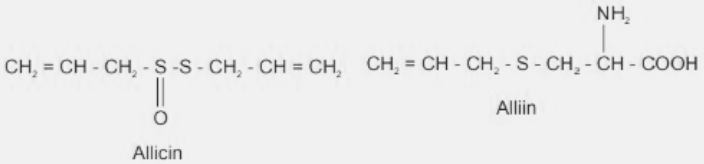
FIG. 10: GINGER

Sr. No.	Parameters	Details
1	Botanical names	*Zingiber officinale* Family: *Zingiberaceae*
2	Common Indian name	Adrak, ale, etc.
3	Occurrence	Jamaica, South India (Cochin), Africa, Japan
4	Part of plants possessing therapeutic activity	Rhizome(underground steam)

5	Chemical constituents	
6	Mechanism of action	Relief from rheumatoids arthritis (R A) , osteoarthritis ,menstrual pain upper respiratory tract infection, cough ,respiratory problem , migrane headache ,bronchitis and diabetes

Garlic: It can reduce inflammation and the symptoms of varicose vein it also helps break up harmful toxins in the blood vessels and improve circulation. Garlic and its secondary metabolites have shown excellent health-promoting and disease-preventing effects on many human common diseases, such as cancer, cardiovascular and metabolic disorders, blood pressure, and diabetes, through its antioxidant, anti-inflammatory, and lipid-lowering properties.

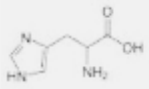
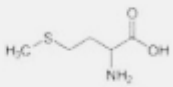
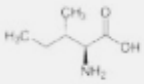
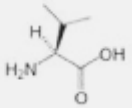
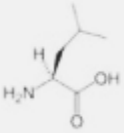
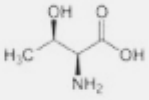
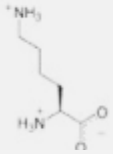
FIG. 11: GARLIC

Sr. no.	Parameters	Details
1	Botanical names	*Allium Sativum* Family : *Amaryllidaceae*
2	Common Indian name	Garlic, lasan, lahsun
3	Occurrence	Native to southeastern Asia
4	Part of plants possessing therapeutic activity	Flower bulb
5	Chemical constituents	
6	Mechanism of action	Treat, rheumatism, arthritis, gout, fluid retention, obesity diuretic remedy, improve blood circulation, reduces blood pressure, antibiotic

Flaxseed: Regular intake of chia seeds or flaxseeds can help in lowering the risks of varicose veins considerably. Chia seeds and flaxseeds are rich in fibers. Therefore, these seeds ensure proper digestion and prevent constipation. They also prevent bloating so that there is no undesired

excess pressure on the abdomen and lower body. Chia seeds and flaxseeds are also effective in improving vascular functioning. Thus, chia seeds or flax seeds work wonders in vanishing the discomforts associated with varicose veins.

FIG. 12: FLAX SEED

Sr. no.	Parameters	Details
1	Botanical names	*Linum usitatissimum* Family : *Liniacea*
2	Common Indian name	Alsi, jawas , akse bija, chia, Linseed,flaxseed
3	Occurrence	North America.
4	Part of plants possessing therapeutic activity	Seed
5	Chemical constituents	 Histidine  Methionin  Isoleucine  Valine  Leucine  Threonine  Lysine
6	Mechanism of action	Mucilaginous, bulking, lubricating agents, chronic constipations, arthritis, psoriasis, anthrosclerosis.

Cinnamon: It reduces inflammation, Act as anti-bacterial, anti-viral and anti-fungal. In addition to being an antioxidant, anti-inflammatory, antidiabetic, antimicrobial, anticancer, lipid-lowering, and cardiovascular-disease-lowering compound, cinnamon has also been reported to have activities against neurological disorders, such as Parkinson's and Alzheimer's diseases.

FIG. 13: CINNAMON

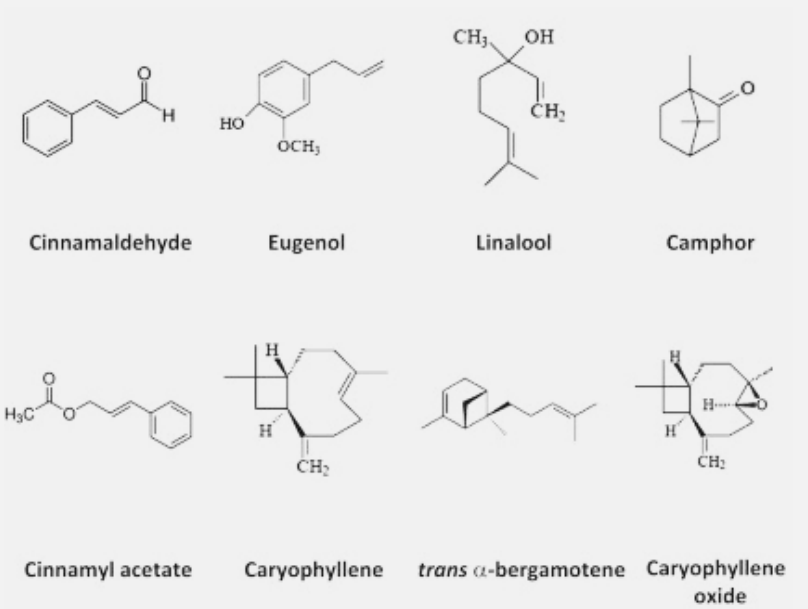
Sr. no.	Parameters	Details
1	Botanical name	*Cinnamomum Verum* Family: *Lauraceae*
2	Common Indian name	*Cinnamomum barthii* Lukman, Dalchini
3	Occurrence	It is native to Srilanka (formerly Ceylon), the Neighbouring Malabar Coast of India, and Myanmar (Burma). It is also cultivated in South America and West indies.
4	Part of plants possessing therapeutic activity	Inner bark
5	Chemical constituents	 Cinnamaldehyde, Eugenol, Linalool, Camphor, Cinnamyl acetate, Caryophyllene, *trans* α-bergamotene, Caryophyllene oxide
6	Mechanism of action	Astringent, stimulant, carminatives, hemostatic, flavoring, antibacterial, antifungal, gastrointestinal tonic, warming herb, passive pulmonary, gastric, intestinal, and renal bleeding, used in nausea and vomiting.

TABLE 1: LIST OF HERBAL PLANTS THAT ARE USED IN THE TREATMENT OF VERICOSE VEINS

Sr. no.	Plant Name	Plant Part Used	Scientific Name and Family	Mode of Action
1.	Butcher's broom	Root	*Ruscus aculeatus* (Liliaceae)	Anti-inflammatory, vasoconstrictor, antihemorrhagic
2.	Stone roots	Roots	*Collinsonia canadensis* (Lamiaceae)	Act as gastro-intenteritis with diarrhoea, hemorrhoids and laryngeal inflammations, hemorroids, vasoconstriture, stimulants, tones alimentary mucos membranes, diurectics, astringent
3.	Cayenne	Leaves and fruits	*Capsicum frutescent* (Solanaceae)	Fibrinolytic action which is helpful in varicose veins treatment
4.	Agrimony	Aerial parts	*Agrimonia spp*. (Rosaceae)	Diurectics, astringent, stimulating gastrointestinal tonic, hepatic atony, enuresis
5.	Geranium	Root	*Geranium maculatum* (Geraniaceae)	Used as styptic, atonic tissues, passive hemorrhages, ulcerations in mucous membranes, digestive tract, venous atony, congestion
6.	White oak	Bark	*Quercus alba* (Fagaceae)	Astringent, styptic, mucous membrane irritation, passive hemorrhages, venous laxity, congestion, bleeding hemorrhoids, varicosities
7.	Witch Hazel	Bark	*Hamamelis virginiana* (Hamamelidaceae)	Astringent, styptic, mucous membrane irritation, passive hemorrhages, venous laxity, congestion, bleeding hemorrhoids, varicosities, heal wounds and local inflammations
8	Yarrow	Flowers and leaves	*Achillea millefolium* (Asteraceae)	Bitter tonic, antiseptic, styptic, stimulating diaphoretic, anti-inflammatory, anodyne, atonic, relaxed tissues where thre is free discharge bleeding of bright red blood, diarrhea, hemorrhoids, excessive menstural flow, vaginitis, Hemostatic

9	Slippery elm	Inner bark	*Ulmus spp.* (rubra, fulva)	Demulcent, diuretic, anti-inflammatory, soothing mucos membrane irritation in GIT, respiratory tract, and urinary tract. Used internally in inflammations of mouths, throat, stomach, intestines, bladder, urethra, used externally in burns, ulcers, skin disorders, wounds, respiratory tract disorders
10	Psyllium	Seed	*Plantago ovata* (Plantaginaceae)	Soothe GIT mucosa, demulcent, bulking agents, helps in constipation, diarrhea
11	Manjistha	bark	*Rubia cordifolia* (rubiaceae)	Treat uric acid and arthritis , urinary infections , diarrhea, dysentery and chronic fevers.
12	Calendula	Flower prior to fully opening	*Calendula officinalis* (Asteraceae)	Antiseptic, anti-inflammatory, choleretic, demulcent, vulnerary, immune stimulant, antiviral, support creation of normal connective tissues structures, wound healing, burns, boils, rashes, formulations of granulations tissues
13	Comfrey	Root and main rib	*Symphytum officinalis* (Boraginaceae)	Heal inflammation of thrombophlebitis and phlebitis, skin wounds, irritations, sprains, contusions, burns, ulcer, skin disorders
14	Saint john's wort	Flowering tops	*Hypericum perforatum* (Guttiferae)	Antiviral, Antiseptic, astringent, anti-inflammatory, antibacterial, nervine, sedative, trophorestorative, lymphagogues, haemorrhoid, vulnerary
15	Cleavers	Fresh succulent aerial parts in flowering/seed forming stage	*Gallium aparine* (Rubiaceae)	Diuretic, nutritive, vulnerary, hypotensive, lymphagogues, bladder and kidney problems, prostatic hypertrophy, reduce stones
16	Red root	Root	*Ceanothus americanus* (Rhamnaceae)	Expectorant, astringent, lymphatic, splenic, liver congestion, enlarged lymph nodes, sinustitis, tonsillitis, laryngitis, pharyngitis, chronic post-nasal drip, mononucleosis, increase platelates counts, reduce cysts, subacute and chronic conditions, lymphagogues
14	Onion	Bulb	*Allium cepa*	Treat digestion problems including loss of appetite, upset stomach, and gallbladder disorders; for treating heart and blood vessel problems including chest pain (angina) and high blood pressure; and for preventing "hardening of the arteries" (atherosclerosis
15	Raw potatoes	grated Fruit	*Solanum tuberosum* (Solanaceae)	Paste is use on varicose veins legs
16	Raw grated apples	Fruit	*Malus pumila* (Rosaceae)	Apple cider vinegar is used in treatment of varicose veins
17	Red rose petals	Leaves, Flower	Rosaceae	Use to wash varicose veins legs with warm water

Physical Therapy: Exercise and yoga posses strengthen muscles, promote blood flow, and improve circulation. This improves healthy veins by easing discomfort and other problems. Some of the energizing and efficient yogasans for decreasing the difficulties brought on by varicose veins include Sarvangasana, Halsana, and Pawan Muktasana.

Additionally, ordinary daily exercises like walking, cycling, swimming, etc., aid in muscular toning. It is advised to elevate the legs with pillows or other supports at nighttime or for a few hours during the day to improve blood flow. Using oils like citrus oils, olive oil, mustard oil, and castor oil, the stress is applied to the muscles in the upward direction of the legs during massage therapy *etc.* also results in good circulation and proper drainage of blood [12].

Compression Therapy: The therapy makes use of such a special kind of compression stocking that, by applying pressure to the legs' surface, constricts the swollen veins. As a result, the veins' capacity to carry blood reduces, which raises the flow of blood toward the heart [13].

Non-surgical Treatments:

Sclerotherapy: This method is used to treat spider veins or angioectasia. Sclerosing drugs such as sodium salicylate, polidacanol, and chroamted

glycine are administered using tiny needles in this approach. The treatment is accompanied by compression stockings that must be worn following the sclerotherapy to restrict the treated vessels.

Scarring at the injection site, neovascularization (the creation of miniature veins that may take many months to a year to dissipate), swelling, and small ulcers are all possible side effects of this therapy (in severe cases) [14, 15].

Ultrasound Guided foam Sclerotherapy: The procedure includes injuring the vein's endothelial layer, causing a blockage and scar development in the dilated veins. The sclerosing agent used here is foam, which has a higher surface area on the vein wall. This therapy caused bubble embolism and thrombophlebitis.

Endothermal Ablation: This therapy uses radiofrequency and laser radiation to seal the problematic veins. These therapies guarantee a quick recovery. It contains the following two methods:

Radio-frequency Ablation of the Varicose Veins: The damaged veins are heated using a bipolar generator and a radio-frequency catheter with sheath-able electrodes. This process is carried out at a temperature of 853 °C.

Endovenous Ablation: The vein is blocked by inserting the catheter into the saphenous vein at the saphenofemoral junction (under the knee) and passing the laser fibre through it. This therapy is 98% effective in treating venous insufficiency. Complications seen were limb stiffness, pain, and bruising [16, 17, 18, 4].

Surgical Treatments:

Vein Stripping: This is a surgical method in which the damaged veins are treated by inserting specific wires made of any suitable material *via* a tear in the saphenous vein, causing the veins to "strip." Bilateral surgery is used to operate on the leg while under general anesthesia. Bleeding, bruising, and infections are possible adverse effects [2, 8].

Ambulatory Phlebectomy: The technique for removing superficial veins by creating incisions in the skin. The dermatologist performs the surgery on outpatients. The compression socks are worn for some time following the procedure. There may be some temporary swelling and irritation.

CONCLUSION: So, many patients suffering from the varicose vein usually have to undergo various complex treatments, surgical and non-surgical. They include so many convoluted processes and a number of complications. All of the medications covered in the study plan significant function in treatment of varicose veins and there is no doubt about the importance of plants in the treatment of varicose veins. In the treatment of varicose veins and ulcers, Ayurveda can offer a glimpse of hope.

ACKNOWLEDGEMENT: The authors wish to thank to Department of Pharmacognosy, K. K. Wagh College of Pharmacy, Nashik for the necessary resources throughout my work.

CONFLICTS OF INTEREST: The authors have no conflicts of interest.

REFERENCES:

1. Cragg J and Nyamekye I: The recommended goal in the United Kingdom's National Institute for Health and Care Excellence Clinical Guideline 168 for immediate referral of patients with bleeding varicose veins is not being achieved. Journal of Vascular Surgery: Venous and Lymphatic Disorders 2021; 9(2): 377-82.
2. Williams JG and Mann RY: Hospital episode statistics: time for clinicians to get involved. Clinical Medicine 2002; 2(1): 34.
3. Acharya Vagbhata: Astangahrdayam edited with the 'Vidyotini' Hindi Commentary by Kaviraja Atrideva Gupta Edited by Vaidya Yadunandana Upadhyaya Sutra Sthan, Ch-26/53, Pg. No. 201
4. Maharsi Sushruta: Sushrutasamhita Edited with Ayurveda-Tattva-Sandipika by Kaviraj Ambika-dutta Shastri Foreword by Dr. Pranjivana Manekchanda Mehta part-1, Sutra Sthan Ch-13/3, of.no.57
5. Bergan JJ, Schmid-Schönbein GW, Smith PD, Nicolaides AN, Boisseau MR and Eklof B: Chronic venous disease. New England Journal of Medicine 2006; 355(5): 488-98.
6. London NJ and Nash R: Varicose veins. BMJ 2000; 320(7246): 1391-4.
7. Lim CS and Davies AH: Pathogenesis of primary varicose veins. Journal of British Surgery 2009; 96(11): 1231-42.https://doi.org/10.1002/bjs.6798
8. Raffetto JD and Khalil RA: Mechanisms of varicose vein formation: valve dysfunction and wall dilation. Phlebology 2008; 23(2): 85-98. https://doi.org/10.1258/phleb.2007.007027
9. Tunalier Z, Koşar M, Küpeli E, Çaliş İ and Başer KH: Antioxidant, anti-inflammatory, anti-nociceptive activities and composition of *Lythrum salicaria* L. extracts. Journal of Ethnopharmacology 2007; 110(3): 539-47. https://doi.org/10 16/j.jep.2006.10.024
10. Hamidpour R and Rashan L: A Unique Natural Remedy that Alleviates Varicose Vein. Transl Biomed 2017; 8(3): 127. https://doi.org/10.21767/2172-0479.100127

11. Taber's Cyclopedic Medical Dictionary. Academic Medicine 1941; 16(1): 2244.
12. Kumar M: Scope of Ayurvedic Drugs and Leech Therapy in Management of Varicose Vein of Lower Limb. Journal of Biological and Scientific Opinion 2014; 2(1): 121-123.
13. Sadat U and Gaunt M: Current management of varicose veins. British Journal of Hospital Medicine 2008; 69(4): 214-21711.
14. El-Sheikha J, Carradice D, Nandhra S, Leung C, Smith G, Campbell B and Chetter I: Systematic review of compression following treatment for varicose veins. British Journal of Surgery 2015; 102(7): 719-725.
15. Sadat U and Gaunt M: Current management of varicose veins. British Journal of Hospital Medicine 2008; 69(4), 214-217.
16. Venermo M, Saarinen J, Eskelinen E, Vähäaho S, Saarinen E, Railo M, Uurto I, Salenius J and Alback A: Randomized clinical trial comparing surgery, endovenous laser ablation and ultrasound-guided foam sclerotherapy for the treatment of great saphenous varicose veins. British Journal of Surgery 2016; 103(11): 1438-1444.
17. Sadat U and Gaunt M: Current management of varicose veins. British Journal of Hospital Medicine 2008; 69(4): 214-217.
18. Venermo M, Saarinen J, Eskelinen E, Vähäaho S, Saarinen E, Railo M, Uurto I, Salenius J and Alback A: Randomized clinical trial comparing surgery, endovenous laser ablation and ultrasound-guided foam sclerotherapy for the treatment of great saphenous varicose veins. British Journal of Surgery 2016; 103(11): 1438-1444.

How to cite this article:
Malode SD, Mahajan KP, Pagar PS, Gavit SS and Raut AK: Herbal plants used in varicose veins. Int J Pharm Sci & Res 2024; 15(6): 1627-38. doi: 10.13040/IJPSR.0975-8232.15(6).1627-38.