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Review Article

## A Brief Review on Herbs Used in the Treatment of Varicose Veins

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### Abstract

A weakening of the venous valves and walls is a common cause of varicose veins. Blood might flow back and pool in veins due to damaged valves, causing them to enlarge. Weakened vein walls are longer, broader, and less elastic than normal, causing valve flaps to split, resulting in increased blood pooling and twisted veins. Primary varicose veins are characterised by valvular incompetence and reflux, which have long been assumed to be the cause. Recent research, on the other hand, reveals that valve dysfunction may be preceded by alterations in the vein wall. This condition is referred to as "Siragranthi" in Ayurvedic literature (ie.Varicose vein). As a result, the current review critically assesses the possible utility of herbal medications in the treatment of varicose veins.

**Keywords-** Herbal Plants, Varicose veins, Types, Pathophysiology

## 1. INTRODUCTION-

Varicose veins are veins that are tortuous, twisted, or extended. Size alone does not suggest abnormalities unless the growth is extreme, because size can change depending on ambient temperature and, in women, hormonal factors. Furthermore, in a thin individual, typical superficial veins may appear enormous, but varicose veins in an obese person may be inconspicuous<sup>5,7</sup>.

## 2. TYPES OF VARICOSE VEINS-

Trunk varicose veins, reticular varicose veins, and telangiectasia varicose veins are the three types of varicose veins. Spider veins, star bursts, thread veins, and matted veins are all terms used to describe telangiectasia. Only a small percentage of varicose veins are caused by secondary disorders including deep vein thrombosis and occlusion, pelvic tumours, or arteriovenous fistulae<sup>2</sup>.

## 3. 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<sup>4,8</sup>.

## 4. PATHOPHYSIOLOGY-

The belief that varicose veins are caused by valve failure in the superficial veins, resulting in venous reflux and vein dilatation, has been replaced by the theory that valve incompetence occurs after a change in the vein wall, rather than before it. As a result, the vein wall in varicose veins is naturally weak, causing dilation and separation of valve

cusps, rendering them ineffective. Varicose veins are caused by advancing age and parity, as well as vocations that entail a lot of standing. There is no indication that the prevalence of varicose veins is influenced by social class, smoking, or genetic makeup. In women, obesity is linked to the development of varicose veins, but not in men<sup>2</sup>.

## 5. PRINCIPAL THAT CAUSE VARICOSE VEINS ARE-

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 generated in the deep veins during calf muscle contraction may be immediately conveyed to the superficial system in patients with perforator vein incompetence.
4. Valvular incompetence can be caused by valve leaflet deformation, ripping, thinning, and adhesion. Pathological weakening and dilatation are caused by structural changes in the vein wall.
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<sup>6,9,10</sup>.

## 6. HERBAL PLANTS-

A wide variety of therapeutic plants can be found all over the world. Many weeds in our environment are highly effective medicinal plants that can help with a variety of significant health issues <sup>11,12,13</sup>. India has long been known as a great store of natural remedies among ancient cultures <sup>14,15,16</sup>. TABLE- 1. List of herbal plants that are used in the treatment of varicose veins<sup>1,3</sup>. TABLE-2. List of herbs used to support liver and decrease blockage in the blood flow<sup>1,3</sup>. TABLE-3. List of oils that are used in the treatment of varicose veins. some ayurvedic marketed formulations of varicose veins are- Sahacharadi Kashaya, Sahacharadi Thailam, Rasa Thailam, Chamomile Ointment<sup>3,5</sup>.

**Table 1: List of herbal plants that are used in the treatment of varicose veins<sup>1,3</sup>**

S.N.	Plant Name	Plant Part Used	Scientific Names And Family	Mode Of Action
1	Butcher's broom	Root	<i>Ruscus aculeatus</i> (Liliaceae)	Anti-inflammatory, vasoconstrictor, antihemorrhagic
2	Gotu kola	Whole plant	<i>Centella asiatica</i> (Umbelliferae)	Anti-inflammatory, diuretic, laxative, antiseptic, stimulant, heals wound and ulcers, improve memory, sluggish digestion, leprosy, skin eruptions, varicose veins, improve capillary permeability, ulcers, fever
3	Horse chestnut	Ripe chestnut and bark	<i>Asculus hippocastanum</i> (Hippocastanaceae)	Improve vascular resistance, reduced pathologically induced capillary wall permeability, antringent
4	Stone roots	Roots	<i>Collinsonia canadensis</i> (Lamiaceae)	Act as gastro-intenteritis with diarrhoea, hemorrhoids and laryngeal inflammations, hemorrhoids, vasoconstrictive, stimulants, tones alimentary mucos membranes, diuretics, astringent
5	Cayenne	Leaves and fruits	<i>Capsicum frutescens</i> (Solanaceae)	Fibrinolytic action which is helpful in varicose veins treatment
6	Garlic	Flower bulb	<i>Allium sativum</i> (Amaryllidaceae)	Treat rheumatism, arthritis, gout, fluid retention, obesity, diuretic remedy, improve blood circulation, reduces blood pressure, antibiotic
7	Ginger	rhizome (underground stem)	<i>Zingiber officinale</i> (family Zingiberaceae)	relief from rheumatoid arthritis (RA), osteoarthritis, menstrual pain, upper respiratory tract infections, cough, respiratory problems, migraine headache, bronchitis, and diabetes.
8	Agrimony	Aerial parts	<i>Agrimonia spp.</i> (Rosaceae)	Diuretics, astringent, stimulating gastrointestinal tonic, hepatic atony, enuresis
9	Bayberry	Bark	<i>Myrica cerifera</i> (Myricaceae)	Astringent, styptic, tonifying the atonic tissues, used in passive hemorrhages, ulcerations, venous atony,

				congestion
10	Cinnamon	Inner bark	<i>Lauraceae</i>	Astringent, stimulant, carminatives, hemostatic, flavoring, antibacterial, antifungal, gastrointestinal tonic, warming herb, passive pulmonary, gastric, intestinal, and renal bleeding, used in nausea and vomiting
10	Geranium	Root	<i>Geranium maculatum</i> ( <i>Geraniaceae</i> )	Used as styptic, atonic tissues, passive hemorrhages, ulcerations in mucous membranes, digestive tract, venous atony, congestion
11	White oak	Bark	<i>Quercus alba</i> ( <i>Fagaceae</i> )	Astringent, styptic, mucous membrane irritation, passive hemorrhages, venous laxity, congestion, bleeding hemorrhoids, varicosities
12	Witch Hazel	Bark	<i>Hamamelis virginiana</i> ( <i>Hamamelidaceae</i> )	Astringent, styptic, mucous membrane irritation, passive hemorrhages, venous laxity, congestion, bleeding hemorrhoids, varicosities, heal wounds and local inflammations
13	Yarrow	Flowers and leaves	<i>Achillea millefolium</i> ( <i>Asteraceae</i> )	Bitter tonic, antiseptic, styptic, stimulating diaphoretic, anti-inflammatory, anodyne, atonic, relaxed tissues where there is free discharge bleeding of bright red blood, diarrhea, hemorrhoids, excessive menstrual flow, vaginitis, Hemostatic
14	Slippery elm	Inner bark	<i>Ulmus spp. (rubra, fulva)</i>	Demulcent, diuretic, anti-inflammatory, soothing mucous 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
15	Psyllium	Seed	<i>Plantago ovata</i> ( <i>Plantaginaceae</i> )	Soothe GIT mucosa, demulcent, bulking agents, helps in constipation, diarrhea
16	Flax seeds	Seed	<i>Linum usitatissimum</i> ( <i>Linaceae</i> )	Mucilaginous, bulking, lubricating agents, chronic constipations, arthritis, psoriasis, antherosclerosis
17	Calendula	Flowers prior to fully opening	<i>Calendula officinalis</i> ( <i>Asteraceae</i> )	Antiseptic, anti-inflammatory, choleric, demulcent, vulnerary, immune stimulant, antiviral, support creation of normal connective tissues structures, wound healing, burns, boils, rashes, formulations of granulations tissues
18	Comfrey	Root and main rib	<i>Symphytum officinalis</i> ( <i>Boraginaceae</i> )	Heal inflammation of thrombophlebitis and phlebitis, skin wounds, irritations, sprains, contusions, burns, ulcer, skin disorders
19	Plantain	Leaf	<i>Plantago spp.</i> ( <i>Plantaginaceae</i> )	Antiseptic, astringent, anti-inflammatory, cooling agent for use with haemorrhoid, vulnerary
20	Saint john's wort	Flowering tops	<i>Hypericum perforatum</i> ( <i>Guttiferae</i> )	Antiviral, Antiseptic, astringent, anti-inflammatory, antibacterial, nervine, sedative, trophorestorative, lymphagogues, haemorrhoid, vulnerary
21	Cleavers	Fresh succulent aerial parts in flowering/seed forming stage	<i>Gallium aparine</i> ( <i>Rubiaceae</i> )	Diuretic, nutritive, vulnerary, hypotensive, lymphagogues, bladder and kidney problems, prostatic hypertrophy, reduce stones
22	Red root	Root	<i>Ceanothus americanus</i> ( <i>Rhamnaceae</i> )	Expectorant, astringent, lymphatic, splenic, liver congestion, enlarged lymph nodes, sinusitis, tonsillitis, laryngitis, pharyngitis, chronic post-nasal drip, mononucleosis, increase platelets counts, reduce cysts, subacute and chronic conditions, lymphagogues
23	Bhrami	Whole plant	<i>Centella Asiatica</i> ( <i>Apiaceae</i> )	Alzheimer's disease, improving memory, anxiety, attention deficit-hyperactivity disorder (ADHD), allergic conditions, irritable bowel syndrome, and as a general tonic to fight stress

24	Guduci	Stem, leaf	<i>Tinospora cordifolia</i> Willd (Menispermaceae)	Curing liver diseases, blood purification capabilities help in fighting bacteria, antipyretic properties, treat fevers like dengue, malaria, and swine flu.
25	Onion	Bulb	<i>Allium cepa</i>	treating 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).
26	Manjistha		<i>Rubia cordifolia</i> (Rubiaceae)	treat uric acid and arthritis, urinary infections, diarrhea, dysentery, and chronic fevers.
27	Raw potatoes grated	Fruit	<i>Solanum tuberosum</i> (Solanaceae),	Paste is use on varicose veins legs
28	Raw grated apples	Fruit	<i>Malus pumila</i> (Rosaceae)	Apple cider vinegar is used in treatment of varicose veins
29	Red rose petals	Leaves, flower	<i>Rosaceae</i>	Use to wash varicose veins legs with warm water

## 7. LIVER HERBS

Supporting the liver decreases blockage in the flow of blood from the rectal veins to the portal vein and therefore decreases venous distention and hemorrhoids due to liver dysfunction.

**Table 2: List of herbs used to support liver and decrease blockage in the blood flow<sup>1,3</sup>**

S.N.	Plant Name	Scientific Name And Family	Plant Part Used	Pharmacological Activity
1	Burdock	<i>Atrium lappa</i> (Asteraceae)	Root	Diuretic, stimulant, blood and lymph cleanser, liver tonic, choleric, mild laxative, stimulates natural flow of lymphatic fluid thereby supporting excretion of toxic products of cells, helps in removing accumulated toxic byproducts of skin, kidney, liver, gallbladder, mucous, serous membrane through catabolism
2	Dandelion	<i>Taraxacum officinalis</i> (Asteraceae)	Whole plant, leaves, flower, roots	Diuretic, stomachic, mild laxative, cholagogue, choleric, lower blood pressure, cholesterol, decrease edema, normalize sugar level, arthritis, gout, skin diseases
3	Licorice	<i>Glycyrrhiza glabra</i> (Fabaceae)	Root	Demulcent, adaptogen, adrenal-modulator, antibacterial, antiviral, expectorant with secretolytic and secretomotor activity, nutritive, spasmolytic, antioxidant, anti-inflammatory, estrogenic, immune stimulant, liver tonic, protectant, Glycyrrhizic acid and aglycone Glycyrrhizic acid decrease inflammation by increasing the movement of leucocytes towards inflamed area, Glycyrrhizin inhibits the activity of phospholipase A and formation of prostaglandin E2 in activated peritoneal macrophages
3	Milk thistle	<i>Silybum marianum</i> (Asteraceae)	Seed	Hepatoprotective, antioxidant, it stimulate RNA polymerase A which enhances ribosome proteins synthesis and activates the regenerative capacity of liver cells
4	Turmeric	<i>Curcuma longa</i> (Zingiberaceae)	Rhizome	Antiarthritic, antibacterial, antifungal, hypotensive, anti-atherosclerotic, cholagogue, choleric, emmenagogue, anti-inflammatory, lower cholesterol, stimulates digestive enzymes, carminative, hepatoprotective, vulnerary, anticoagulant, flatulence, jaundice, menstrual difficulties, gallstones, haemorrhages, toothache, bruises, colic, arthritis, sprains, wounds, anticancer
5	Corylus avellana	<i>Corylus avellana</i> (Betulaceae)	Fruit	Venotonic action, protective effect against hypertension, chronic heart diseases
6	Vaccinium myrtillus	<i>Vaccinium myrtillus</i> (Ericaceae)	Fruit wild blueberries	Use in venous insufficiency by varicose veins and hemorrhoids, vascular disorders

**Table 3: List of oils that are used in the treatment of varicose veins**

S.N.	Oil Name	Plants Name And Family	References
1	Pumpkin	Cucurbita (Cucurbitaceae)	5
2	Sunflower	Helianthus annuus (Asteraceae)	5
3	Grapes seed oil	Vitis vinifera (Vitaceae)	5
4	Rice bran oil	Oryza sativa L (Poaceae)	5

## 8. CONCLUSIONS

All of the medications covered in this study play a significant function in the treatment of varicose veins. In contrast, the mode of action of bioactive phyto-molecules found in plants is less well understood, but 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. Traditional drug formulations, on the other hand, must be investigated and re-standardized using new methodologies and approaches for controlling varicosis.

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