

THE LYMPHATIC SYSTEM

The lymphatic system is part of the circulatory system, comprising a network of lymphatic vessels that carry a clear fluid called lymph directionally towards the heart. Unlike the cardiovascular system the lymphatic system is not a closed system. The human circulatory system processes an average of 20 litres of blood per day through capillary filtration which removes plasma while leaving the blood cells. Roughly 17 litres of the filtered plasma get reabsorbed directly into the blood vessels, while the remaining 3 litres are left behind in the interstitial fluid. One of the main functions of the lymph system is to provide an accessory route for these excess 3 litres per day to get returned to the blood.

The other main function is that of defense in the immune system. Lymph is very similar to blood plasma but contains lymphocytes and other white blood cells. It also contains waste products and debris of cells together with bacteria and protein. Associated organs composed of lymphoid tissue are the sites of lymphocyte production. Lymphocytes are concentrated in the lymph nodes. The spleen and the thymus are also lymphoid organs of the immune system. The tonsils are lymphoid organs that are also associated with the digestive system. Lymphoid tissues contain lymphocytes, and also contain other types of cells for support. The system also includes all the structures dedicated to the circulation and production of lymphocytes (the primary cellular component of lymph), which also includes the bone marrow, and the lymphoid tissue associated with the digestive system.

Lymph is the fluid that is formed when interstitial fluid enters the initial lymphatic vessels of the lymphatic system. The lymph is then moved along the lymphatic vessel network by either intrinsic contractions of the lymphatic passages or by extrinsic compression of the lymphatic vessels via external tissue forces (e.g. the contractions of skeletal muscles), or by lymph hearts in some animals. The organization of lymph nodes and drainage follows the organization of the body into external and internal regions; therefore, the lymphatic drainage of the head, limbs, and body cavity walls follows an external route, and the lymphatic drainage of the thorax, abdomen, and pelvic cavities follows an internal route. Eventually, the lymph vessels empty into the lymphatic ducts, which drain into one of the two subclavian veins (near the junctions of the subclavian veins with the internal jugular veins).

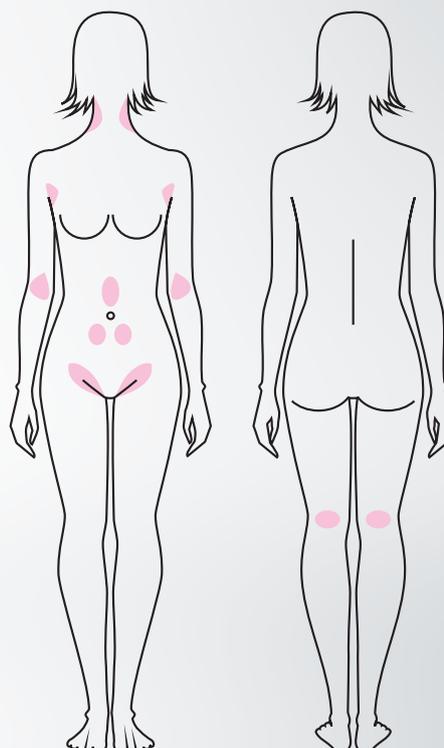
Lymph nodes are particularly numerous in the mediastinum in the chest, neck, pelvis, axilla (armpit), inguinal (groin) region, and in association with the blood vessels of the intestines.

Due to the inflammation of blocked nodes, swelling and water retention is common. Drainage of the lymphatic system is therefore very important, and the use of the lymphereum tincture and liniment is key in the removal of inflammation.

INSTRUCTIONS FOR APPLICATION

After a warm bath, apply 1-2 pumps of the liniment directly onto the skin on areas where lymph nodes are situated, massaging gently until absorbed. For optimum results, combine with the use of Lymphereum Tincture drops (30 drops in a glass of water, twice daily).

Location of lymph nodes



INTRODUCTION TO HERBAL MEDICINE / PHYTOTHERAPY.

TERMINOLOGY

Herbal medicine uses plants. plants are named according to three conventions:

The botanical name, globally applicable, eg Echinacea angustifolia

The Common name, varies from region to region, eg Cone flower

The Abbreviated pharmaceutical name, exclusive to the pharmaceutical sector, eg Echinacea herbal radix.

The convention used on Hermeco herbal medicines is the Common name as the plant is known by in South Africa.

INTRODUCTION

The use of medicinal plants worldwide far exceeds the use of modern synthetic drugs. They are accessible and inexpensive. The plants from the area is used, they are not provided from a remote professional or government apparatus. As existing pharmaceutical products prove to have side-effects or become ineffective, more research is done on plants as a major source for new medicines. The pharmaceutical science is based on a single component for which the body's response to it and the component's response to the body can be measured. Plants contain an average of 30 chemicals, the complexity of the plants's chemical matrix can not be researched, understood, evaluated or studied with the methods and practices available for use today. This complexity causes the pharmaceutical industry to regard it as having no scientific basis (i.e. unscientific). There are just too many variables to consider. Herbal medicine does not isolate ingredients and DOES NOT base whole plant effect on the effect of an isolated ingredient. Findings of active ingredients should never be extrapolated to apply to the whole plant. Herbal medicine prefers to work with these complexities knowing that the synergy created by all the ingredients together is what enhances solubility, bio-availability, performance in the body (also a long list of variable conditions) and thus provides a better outcome.

SECONDARY METABOLITES

Where plants manufacture certain chemical in its process of growing, certain chemicals are only produced when the plant is under duress. If a tree is attacked by beetles, it produces tannin in the bark as a mechanism of self protection. Thus a large proportion of the chemicals in plants are only produced upon stimulation of some sort, or develops the chemical after harvesting.

CHEMICAL GROUPS

- Carbohydrates

Monosaccharides, Oligosaccharides, Polysaccharides (including those from microorganisms, fungi, also heterogenous and homogenous polysaccharides)

- **Lipids** including vegetable oils and alkyne derivatives.

- **Amino acids**, Peptides, Proteins & Enzymes. Including amino acids not part of proteins, Cyanic glycosides, Glucosinolates, Betalains, Protein sweeteners, Lectins, Enzymes.

- **Phenolics, shikimates & acetates**. Including phenols and phenolic acids, Coumarins, Lignans, Neolignans, Phenylpropane derivatives, Flavonoids, Anthocyanins, Tannins.

- **Polyketides**: Quinones, Orcinols, Phloroglucinols

- **Terpenoids & steroids**: Monoterpenes, Sesquiterpenes, Essential oils, Oleoresins, Iridoids, Pyrethrins, Sesquiterpene lactones, Diterpenes, Triterpenes, Saponins, Cardiac glycosides, Steroids, Caretonoids

- **Alkaloids - derived from Ornithine & Lysine**: Tropane alkaloids, Pyrrolizidine alkaloids, Quinolizidine alkaloids, Indolizidine alkaloids, Piperidine alkaloids.

- **Alkaloids - derived from Nicotinic acid**

- **Alkaloids - derived from Phenylalanine & Tyrosine**: Phenethylamines, Simple Isoquinolines, Benzyltetrahydroisoquinolines, Morphine alkaloids, Phenethylisoquinolines, Amaryllidaceae alkaloids, Monoterpenoid Isoquinolines.

- **Alkaloids derived from Tryptophan**: Tryptamines, Beta carboline alkaloids, Ergoline alkaloids, Monoterpenoid indole alkaloids,

- **Alkaloids derived from Anthranilic acid**

- **Alkaloids derived from Histidine**

- **Purine bases**.

THERAPEUTIC STRATEGY

Herbal medicine aims to support the body in self repair. Herbal remedies always have inherent benefits and bring with it, apart from the formula directed healing, a host of indirect benefits:

- Herbs always restore the internal balance of the body, ensuring and supporting the body in its own healing process
- Herbs are always cleansing, ridding the body of toxins (preservatives, colourants, additives) which we ingest on a daily basis, strengthen organs and body in its function

- Herbs always tend to do more in activating the deeper immune system than other medical systems. Herbs also address the surface immune factors such as micro-organisms and pathogens very successfully. Herbs are inherently adaptogenic, improving the body's ability, assisting us in coping better with pressure.
- Herbs always act as tonics, nourishing and toning, aiding and improving the structure and performance of tissues, organs and systems.

As an example to the above, fever is managed, not necessarily brought down, blood pressure problems is an indication of kidney problems and it approached systemically, Eczema indicative of a struggling liver, although treated topically, would always require internal rectification.

The herbal approach takes the whole body into account

SAFETY ISSUES

Herbal medicine is safe. This means:

Side effects occur seldom, and manifests mostly as allergic reactions. Side effects are seldom severe.

These are valid when prescribed dosages are adhered to. Warnings, where appropriate should be brought under the attention of patients. Most problems encountered with herbal medicine are due to overdose. SAFE does not mean "you can have as much as you like, when you like" it remains medicine and should be treated with the same respect.

With regard to interactions with conventional medicine, which does happen, these would be indicated per ingredient of a blend. As an example: St John's wort can be used in conjunction with standard anti-depressants. Contrary to pharmaceutical claims favourable interactions occur in severe depressive states. The scare is based on the active ingredients tested in isolation, not the whole plant.

DOSAGE AND DOSAGE FORMS

Traditionally an infusion is used. A dried herb is steeped in boiling water for 5 - 7 minutes, strained and sipped slowly. Modern dosage forms such as capsules, tinctures, extracts and the like are easier to take and is the most preferred forms. Dosage can vary from country to country, but basically 2 lines are followed - Minimalistic, i.e. to give just enough stimulus to the body the correct itself and Miximalistic, i.e. give so much that the body has enough of all chemicals to enhance bodily performance.

Dosage forms also depends on whether a fast reaction time is needed, eg migraine or whether it is a longer term treatment eg an ulcer. Migraine would respond better to a tincture and ulcer to a capsule. Tinctures do however allow for a better manipulation in the extraction process eg alcohol tinctures can extract essential oils in a 45-60% alcohol solution. If the essential oil is not wanted a 25% alcohol solution would be preferred. Tincture strengths/potency are expressed as the relationship of plant material to the solvent used. A 1:5 potency is 1 part plant material to 5 parts solvent. A 1:10 potency is weaker as it is made from 1 part plant material to 10 parts solvent.

TOXICITY

Toxicity is a relevant term when applied to Herbal medicine. Most plants are potentially toxic in a fresh state. The conventions developed over centuries has set standards for using plant material and make preparations that are safe. Some plants must be used fresh, but most plants are used dried - for two reasons. Firstly, properly dried plant material lasts longer and is therefore available for longer than only the growing or harvesting season. Secondly most of the poisonous chemicals break up when the plant is dried. In processing the plant material is manipulated by heat or percentage ethanol used in extraction or the density of the filter used or the weakness of the solution. Dosages are calculated to ensure a safe final product.

LYMFEREUM

Ingredients: Echinacea, Cleavers, Calendula, Poke Root.

Indications: Stimulating the lymphatic system.

Assistance with the draining of toxic substances through the lymphatic system. Enlarged or swollen lymph nodes, glandular inflammation. Skin conditions (eg. sebaceous cysts), as a depurative acting primarily via the lymphatic system.

Adjuvant therapy for cancer.

Packaging & Dosage:

Preferred dosage form: Tincture -

Bottles of 30ml, 50ml & 100ml.

Dosage: 20 Drops in a little water 3 times per day.

Children: 1 Drop per year age, up to 12 years. Then follow adult dose.

Preferred due to the faster absorption! reaction times of tinctures.

Alternative dosage form: Capsules -

Bottle of 90.

1 Capsule 3 times per day.

Children: Adhere to children's dosages, stop usage immediately if any adverse reactions occur

LYMFEREUM LINIMENT.

Ingredients: Echinacea, Cleavers, Calendula, Poke root in a vegetable gliserien base.

Indications: Topical application for swollen glands, congested lymphatic system.

Warnings: Do not use on broken skin.

Packaging & Dosage:

Liniment -Bottles of 100ml, 200ml. Apply directly to affected areas at least 3 times per day.

ECHINACEA (ECHINACEA ANGUSTIFOLIA HERB) (HERBA ECHINACEA PALLIDA)

There are 3 species of Echinacea, E. angustifolia, E. purpurea and E. pallida.

The one used in Lymfereum is E. angustifolia. There is superficially little difference between the species. E. pallida is more frequently used, but generally has lower concentrations of the constituents and a few absent. E. Purpurea is more detoxifying, but tends more to cause the typical symptoms of a detox program, i.e. loose stool, headache initial aggravation of some conditions, such as eczema. E. angustifolia is best suited for immune stimulation, stopping the spreading of infections and the systemic restoration of balanced metabolism.'

Constituents:

1. Echinacoside, a triglycoside of a caffeic acid derivative. This is not present in E. purpurea.
2. Unsaturated isobutyl amides, incl. echinacin and others
3. Polysaccharides; aheteroxylon and an aribinoraminogalactan.
4. Polyacetelenes, at least 13 of which have been isolated. It has been postulated that these are artifacts formed during storage, since they are found in dried, but not fresh material. (Secondary metabolite)
5. Essential oil, containing humulene, caryphyllene and its epoxide, germacene D, and methyl-p-hydroxycinnamate.
6. Miscellaneous : vanillin linoleic acid derivatives, a labdane derivative, alkanes, and flavonoids.
7. Traces of tussilagaine and isotussilagaine, two pyrrolizidine alkaloids.
8. Nutrients: Calcium, Iron, Magnesium Manganese, Phosphorus, Potassium, Selenium, Zinc, Vitamins B1, B2, B12, C.

Actions: Alterative, Analgesic, Antibacterial, Antiedemic, Antiexudative, Antihyaluronidase, Anti-inflammatory, Antiintegrase, Antiseptic, Antispasmodic, Antitumor, Antiviral, Bifidogenic, Candidicide, Collagen sparing, Cyclooxygenase inhibitor, Fungicide, Immunostimulant, Interferogenic, 5-Lipoxygenase inhibitor, Phagocytotoxic, Prebiotic, Prostaticide, Sialagogue, TN F-genic, Trichomonicide, Vasodilator, Vulnerary.

Contra-indications, Adverse effects and warnings.

E. Angustifolia does contain pyrrolizidine alkaloids (Traces of tussilagaine and isotussilagaine, as low as 60ppm has been found) See note at the bottom regarding

pyrrolizidine) This amount is not only negligible, but also a harmless form of pyrrolizine. E. angustifolia is contraindicated in cases of a known allergy to plants of the Asteraceae (Compositae) family.

The Commission E reports indicate progressive systemic diseases as a contra-indication, and should thus be used with caution. E. angustifolia does stimulate immunity, but also balances the immune system. In systemic diseases, it might aggravate symptoms.

These diseases when treated with herbal medicine only, did not show any symptoms, so the reactions may also be due to contraindications to allopathic medicines the person is taking. It may also be due to wrong usage or wrong herb at the wrong time. To be safe, monitor the patient closely, if any symptoms appear that causes discomfort, stop the use of Lymfereum. The symptoms vary but mostly include headache, shivering, fever, which is the normal symptoms of an allergic reaction and not necessarily those of the systemic disorder. Depending on the systemic disease, there might be other symptoms. The systemic diseases in question is: tuberculosis, leukosis, collagenosis, multiple sclerosis, AIDS, HIV, auto-immune disorders. The herbal medicine approach does not share the opinion that any stimulation of the immune system necessitates a reaction/flare-up of the disorder. Herbal immune stimulants all incorporate the balancing effect, the result is a restored, balanced immune system and gradually the systemic disease / auto-immune

disease goes into remission. This view might not be shared equally by all phyto-therapists, however experience proves the fact.

Safety in Pregnancy, Nursing mothers and Fertility

Does not cause mutations, is not carcinogenic. There are no reliable studies on Pregnancies or Nursing mothers. As none has been reported either, it should not be used within the first 3 months of pregnancy, should not exceed the prescribed dosage and such patients should be monitored.

Pediatric use

Not recommended for children under the age of 12, unless prescribed by a qualified physician and then children's dosages should be strictly adhered to.

PYRROLIZIDINE ALKALOIDS.

There are more than 20 different alkaloids that belong to the group "Pyrrolizidine". Some are completely safe and others very toxic. If any plant contains these, please do follow-up to see which ones it is. The two found in Echinacea tussilagaine and isotussilagaine do not contain the 1,2-unsaturated necine ring required for hepatotoxicity.

Calendula (Calendula officinalis flower petals) (Marigold - Eng) (11 Flos. Calendulae)

Constituents.

1. Triterpenes, pentacyclic alcohols such as faradol, brein, arnidol, erythrodiol, calenduladiol, heliantriol C and F, ursatriol, longispinogenine, the caleduloses A-D, alpha and beta amyryl, taraxasterol, theta-taraxasterol, and lupeol.
2. Flavonoids, isorhamnetin glycosides incl. narcissin, quercetin glycosides incl. rutin
3. Volatile oil
4. Chlorogenic acid.

Actions:

Abortifacient, Analgesic, Angiogenic, Anthelmintic, Antibacterial, Antiplasmodial, Antiedemic, Antiemetic, Anti-hemorrhagic, Anti-H IV, Anti-inflammatory, Antipyretic, Antisarcotic, Antiseptic, Antispasmodic, Antisuppurative, Anti-tumor, antiviral, Aphrodisiac, Astringent, Bitter, Candidicide, Cardiotonic, Carminative, Cholagogue, CNS- depressant, Depurative, Dermagenic, Diaphoretic, Diuretic, Ecbolic, Emmenagogue, Estrogenic, Fungicide, Hemostat, HIV-RT-inhibitor, Hypotensive, Immunostimulant, Laxative, Lymphadenomic, RT inhibitor, Sedative, Spermicide, Stimulant, Stomachic, Tonic, Trichomonocidal, Uterotonic, Vasodilator, Vulnerary.

Contra-indications. Adverse effects and Warnings.

C. officinalis is contraindicated in cases of a known allergy to plants of the Asteraceae (Compositae) family. Weak skin sensitization has been reported for topical applications. No other warnings or precautions documented. No negative drug interactions reported.

Safety in Pregnancy, Nursing mothers and Females

No information available, therefore avoid usage during first 3 months of pregnancy, thereafter do not exceed prescribed dosage and monitor patient regularly. The same applies to Nursing mothers.

Pediatric use

Safe if used according to children's dosages

Cleavers (Clivers)_(Galium aparine)_(Galii aparinis herba) Closely related to Galium verum (Ladies bedstraw) and used for the same purposes, and in some countries used interchangeably. Constituents vary slightly.

Constituents

1. Iridoids, incl. asperuloside and deacetylasperulosic acid.
2. Polyphenolic acids, such as caffeic, p-coumaric, gallic, and p-hydroxybenzoic acids
3. Anthraquinone derivatives, incl. alizarin and its derivatives, xanthopurpurin and its esters, galiosin, and simple anthraquinones. These are in the roots and have been shown to be absent from the aerial parts.
4. n-Alkanes, mainly C alkanes.
5. Flavonoids such as luteolin
6. Misc. tannins and unspecified coumarins.

Actions:

Alterative, Antibacterial, Antidyscratic, Antiinflammatory, Antipyretic, Antispasmodic, Aperient, Astringent, Demulcent, Depurative, Diaphoretic, Diuretic, Emetic, Emmanagogue, Hemostat, Hypotensive, Immunostimulant, Laxative, Larvacide, Litholytic, Lymph tonic, Lymphadenomic, Lymphatic alterative, Poison-binding, Tonic.

Contra-indications, Adverse effects and Warnings.

No Hazards and/or side-effects recorded for proper therapeutic dosages. May lower blood pressure, with no slowing of heartbeat and no toxic effect.

Safety in Pregnancy, Nursing mothers and Fertility

Excessive use should be avoided during pregnancy

Pediatric use.

Safe if used according to children's dosages

Poke root (*Phytolacca americana*) (syn. *P. decandra*) (*Radix Phytolacii*)**Constituents:**

Research is continuing, so far the following have been found:

1. Triterpenoid saponins - the phytolaccosides A, B, C, D and E, based on the aglycones phytolaccagenin and phytolaccic acid.
2. Lectins - the mixture known as "pokeweed mitogen", consisting of 5 glycoproteins termed Pa-1 to Pa-5
3. Proteins of undetermined structure, seeds.
4. Polyphenols.

Actions:

Abortifacient, Alterative, Analgesic, Anti-alzheimeran, Antiarthritic, Anticancer, Anticattarrhal, Antiedemic, Antiexudative, Antigranuloma, Anti-HIV, Antiinflammatory, Antileukemic, Antimelanomic, Antirheumatic, Antiviral, Depurative, Digestive, Emetic, Expectorant, Fungicide, Hematinic, Hepatoprotective, Immunostimulant, Laxative, Lymphatic, Mitogenic, Molluscicide, Narcotic, Parasiticide, Poisonous, Sedative, Stemulator, Stimulant, Taenifuge, Thymolytic.

Contra-indications, Adverse effects and Warnings.

All parts of this plant is considered as potentially toxic. The toxic ingredients, the Lectins, (found more in the roots than the leaves), has a variety of side-effects: Haematological aberrations have been observed in human peripheral blood (fresh berries), Symptoms include nausea, vomiting, cramping, generalised abdominal pain, followed by profound watery stools, weakness, haematemesis, blood diarrhoea, hypotension and tachycardia. Additional symptoms have been documented, namely: difficult breathing, spasms, severe convulsions and death. The fresh plant is outright poisonous and the dried herb or root is not recommended for internal ingestion as a tea. The mitogenic principles in Pokeroot lectins are reported to be a mixture of agglutinating and non-agglutinating glycoproteins affecting both T-cell and B-cell lymphocytes.

Manufacturers of licenced products are permitted to include pokeroot provided that the dose is restricted and that suitable evidence is given to demonstrate the absence of toxic protein constituents. An extraction using 45% Ethanol does not dissolve the Lectins. The saponins are responsible for the thymolytic effect. Pokeroot constitutes approximately 20% of Lymfereum, that is 4 of every 20 drops per dose, from a 1:10 tincture made with 45% Ethanol (according to standard) , providing 2% active ingredients. Pharmacologically regarded as totally safe.

Pokeroot is contra-indicated in gastrointestinal irritation.

Concurrent use with immunosuppressive drugs should be avoided.

Safety in Pregnancy Nursing mothers and Fertility;

Pokeroot is reputed to affect the menstrual cycle and is documented to exhibit uterine stimulant activity in animals.

Pediatric use.

Not safe for children under the age of 12 years.

REFERENCE SOURCES

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