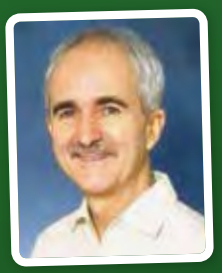
MEDI HERB®

Liquid Prescriber's Guide

MEDI HERB®

A Pioneering Vision of Herbal Therapy



"MediHerb was born out of my desire for efficacious herbal therapy. This remains the driving force behind every aspect of the company from raw material sourcing, manufacturing, quality assurance and research through to our world class education programs. I am proud and grateful to be associated with a company that provides such unparalleled support for the profession. I believe that by recommending MediHerb you are not only giving the best possible products to your patients, you are also investing in the future of natural medicine."

Professor Kerry Bone
MediHerb Co-Founder and
Director of Research and Development

MEDI HERB®

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Liquid Herbal Prescriber's Guide

As a health care professional, you have invested a great deal of time and energy into earning your qualifications. At MediHerb we believe you should protect that investment by using only the highest quality herbal extracts supported by authoritative technical and clinical information.

This guide is a detailed reference of all MediHerb herbal extracts, indexed by herb (botanical and common names) and body system; set out in an easy to use format.

Please take the time to read about our MediHerb Liquid Fundamentals so that you may understand the depth of our passion for high quality herbal extracts. MediHerb has a total commitment to quality, which covers every aspect of our approach from research and development right through to manufacturing.

Like so many decisions you will make in your clinical practice, you need to evaluate the increasing number of herbal products and suppliers by certain criteria. It is vital to your success as a health care professional that you consider these criteria closely and carefully.

The MediHerb Liquid Prescriber's Guide is an essential resource for any health care professional seeking to make an informed choice.

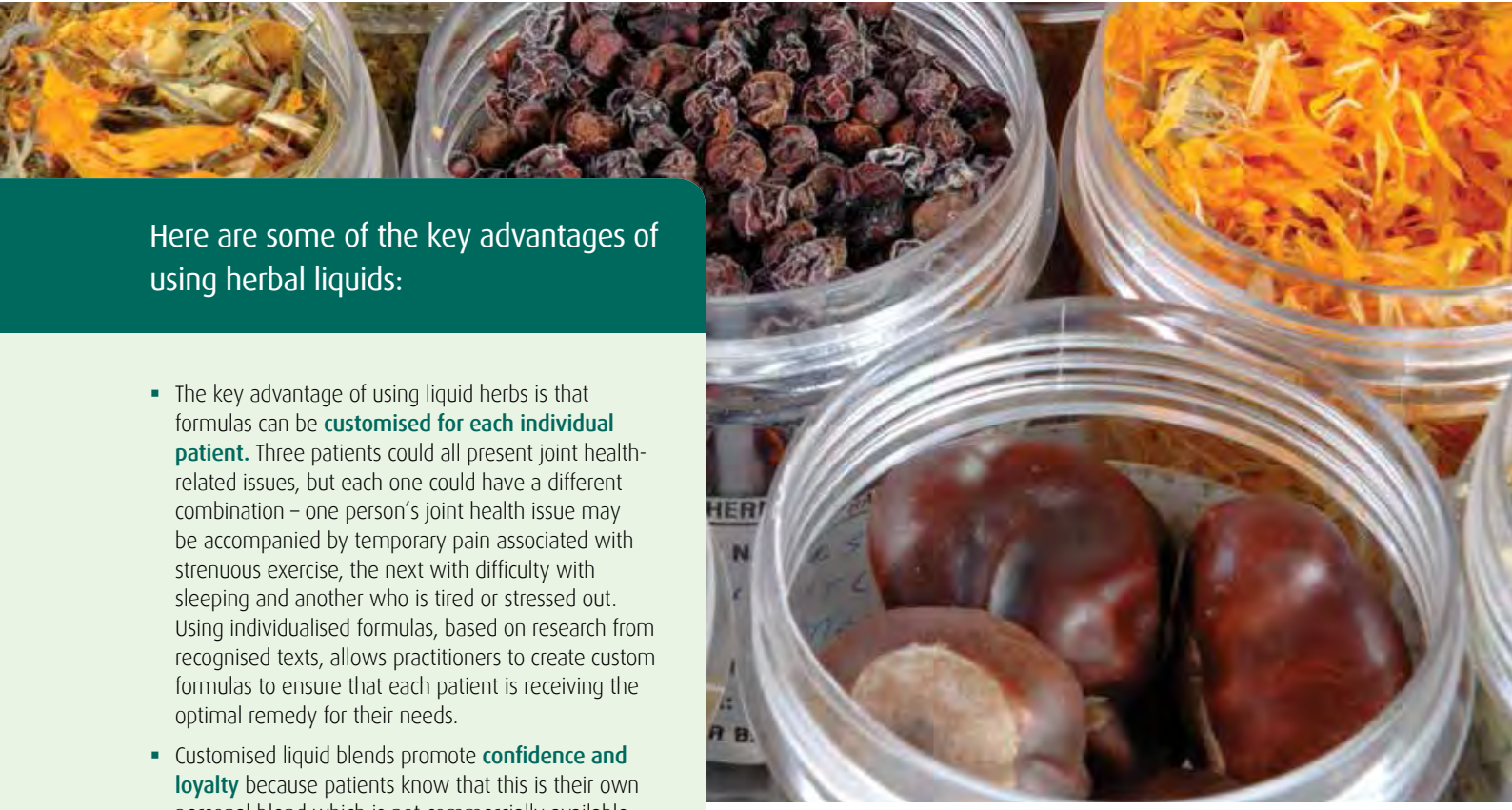
"Our passion at MediHerb is to provide optimum treatment solutions by combining time-honoured wisdom of traditional knowledge with sound clinical experience and the rigour of scientific research."

Professor Kerry Bone

The Art and Science of Herbal Liquids

Why Use Liquid Herbs?

The art and skill of mixing individualised herbal formulations is what sets naturopaths and herbalists apart from other health care professionals. Liquid blending has rich tradition based on wholistic principles to provide clinically-effective results and improve the lives of patients. Receiving an individualised formula fosters the patient's confidence that they are receiving the best possible health care.



Here are some of the key advantages of using herbal liquids:

- The key advantage of using liquid herbs is that formulas can be **customised for each individual patient.** Three patients could all present joint health-related issues, but each one could have a different combination – one person's joint health issue may be accompanied by temporary pain associated with strenuous exercise, the next with difficulty with sleeping and another who is tired or stressed out. Using individualised formulas, based on research from recognised texts, allows practitioners to create custom formulas to ensure that each patient is receiving the optimal remedy for their needs.
- Customised liquid blends promote **confidence and loyalty** because patients know that this is their own personal blend which is not commercially available.
- When manufactured properly, there is **minimal processing** during manufacture which means they more accurately reflect the phytochemistry of the original herb.
- These 'whole herb' extracts or Galenical extracts have been shown to provide a synergistic effect. There is evidence that suggests that crude actives given as whole plant extracts are more bioavailable than pure actives given in isolation. This **superior bioavailability** is an underresearched advantage.
- Herbal liquids provide **flexibility of dose**, allowing the practitioner to easily increase and reduce doses as required. This is especially important for children's dosing.
- Herbal liquids are extremely **easy to take.** The patient only has to open and pour out of one bottle, not several.
- Herbal liquids provide **great value for patients, especially in relation to therapeutic value.** Liquids are an excellent way of getting a potent dose in a concentrated form.
- **Liquids are versatile.** Specific liquids can be also used in topical cosmetic formulations by adding to creams and lotions, mouthwashes, nasal rinses and sprays.
- Liquids are **great for children** (and adults) that have difficulty swallowing.
- **Bioavailability** – herbal extracts are readily absorbed, therefore the active principles can be delivered much faster than the majority of tablets or capsules, which must first be broken down by the digestive tract. This is especially valuable for a person with slow digestion or those needing immediate results. *MediHerb tablets are easily digested and absorbed as they are required by Australian law to disintegrate in less than 30 minutes.*

Herbal Liquids and Taste Compliance

Taste can be an essential factor in the therapeutic response, especially in the case of bitter herbs. However it can also cause issues with patient compliance. The best course of action in this case is to be direct with your patient about the taste issue and instruct them on how to take their liquid formulation so as to minimise the contact time in the mouth.

Once instructed properly, most patients have no trouble in complying with their liquid herbs. Here are some suggestions to ensure compliance with liquid herbs:

- Ask the patient if they can cope with strong tasting liquids. This will draw a commitment from the patient.
- A 5 mL dose of liquid mixture should be taken in no more than 10 mL of water or juice. This amount is easy to swallow quickly in one go and reduces contact time in the mouth.
- The patient should have another 50 mL of water or juice ready so that they can quickly drink this after the liquid mixture to further reduce contact time of the herbal liquid in the mouth.
- Another option is to have the patient suck ice prior to taking the liquid mixture as described above. This deadens the taste buds and olfactory nerve.
- Use flavourings (eg MediHerb's Flavouring Mix) for children or sweeteners like honey. Another option is to make jelly and set it in an ice cube tray with each compartment having one dose of the liquid mixture in with the jelly. Give the child a reward for taking each jelly dose.

Why Ethanolic Herbal Liquids?*

Liquid extracts and tinctures containing ethanol are an essential and historical part of traditional herbal medicine. Used in appropriate doses, such extracts are safe, effective, convenient and have known stability.

Ethanol is generally referred to as alcohol and is present in beer, wine and spirits. It is traditionally used as a solvent in the preparation of herbal remedies. Ethanol has a long history of use in this context, which we understand today is due to its superior extractive and preservative actions. On occasion, concerns have been expressed about using herbal medicines containing ethanol. However, when prescribed in appropriate doses and circumstances ethanolic liquid extracts are both safe and effective.

The Human Diet: Exposure to Ethanol is Natural

Since antiquity humans have been exposed to low levels of ethanol in the course of eating naturally-fermenting fruit. How much ethanol might these ancient humans have ingested from such fruit? A theoretical calculation suggests ingestion of ripe palm fruits growing in the rainforests of Panama would produce a blood-ethanol concentration of about 0.01%. (This assumes a fruit intake of 1% of body mass and full absorption of the ingested ethanol.) Humans have also encountered high concentrations of ethanol through fermentation processes that were initiated for the purpose of food preservation. (Long before refrigeration and additives, fermentation was one of the most important food preservation technologies.)

Ethanol Use in Ancient Herbal Medicine

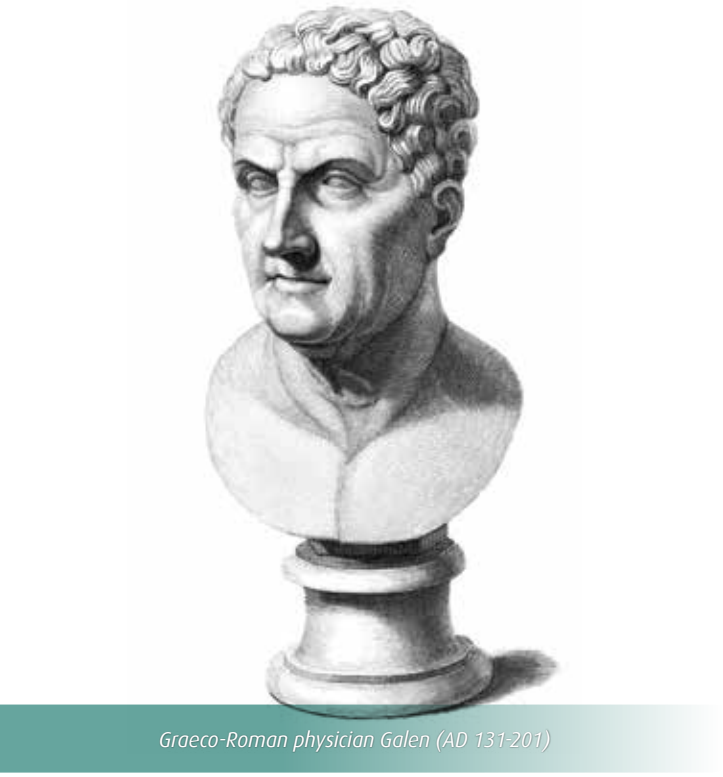
Chemical analyses of organic substances absorbed into pottery jars have recently confirmed the use of medicinal wines in ancient Egypt (about 3150 BC and millennia thereafter) and ancient China (seventh millennium BC). The ancient Egyptian wine contained herbs and tree resins dispensed in wine made from grapes. The jar from ancient China contained a mixed fermented beverage of rice, honey and fruit (hawthorn (*Crataegus* spp.) fruit and/or grape). The medicinal use of wines has been described in ancient documents, and the early Chinese history of fermented beverages is suggested from the shapes and styles of Neolithic pottery vessels. Ancient Egyptian papyri describe water, milk, oil (presumably olive oil), honey, beer and wine as carriers for medicinal herbs. Jewish medicine, described in the second-century Talmud, refers to a 'potion of herbs' mixed with beer or wine. Although the principle of distillation was known to the ancient Greeks, it was the Arabs who adapted the process to produce alcohol, which they then used for medicinal purposes. (The word alcohol, which first appeared in most modern languages in the 16th century, was derived from Arabic (al-koh'l).)

Zingiber officinale

Ethanol Use in Nonwestern Herbal Traditions

The use of ethanol for the preparation of herbal medicines is not limited to western herbal medicine. One of the more ancient forms in Chinese medicine is the medicinal wine (prepared by steeping medicinal substances in wine). Wine itself is also thought to possess medicinal properties.

The *Chinese Pharmacopoeia* (1997) provides monographs on a number of ethanolic liquid extracts, including for example ginger (*Zingiber officinale*) and rhubarb (*Rheum* spp.). These liquid extracts are prepared often by percolation. In addition to maceration and percolation, tinctures are prepared by dissolving a quantity of herb powder with a quantity of ethanol of specified concentration. Mixtures may be prepared by extracting herbs with water or other solvents such as wine or by pulverising and preparing as pills. Korean Ginseng (*Panax ginseng*) is another form of ethanolic liquid extract readily obtained from traditional Chinese herbalists, for example in any Chinatown in cities around the world. According to an ancient medical text, preparations used in traditional Tibetan medicine include decoction (used 63% of the time), powders (18%) and medicinal wines (4%). Medicinal plants can also be stewed with meat or steamed with egg. In Ayurveda herbs were also prescribed in the form of tinctures. Dosages for tinctures are given in well-regarded traditional texts, for example, Andrographis tincture is prescribed in doses of 2.5 to 5 mL. In some cases the form in which the Ayurvedic remedy is administered may modify its action, for example Digitalis given as a tincture is a heart sedative and as an infusion is a diuretic. Traditional Ayurvedic practitioners, although often tending to use infusions and decoctions, can prefer extracts for the purpose of portability, adaptability and for a more concentrated form. Medicated wines are also a part of Ayurveda. They are easier to assimilate than the dried herbs and promote Agni (vitality arising from well-functioning digestion and assimilation).



Graeco-Roman physician Galen (AD 131-201)

Their properties increase, rather than decrease with ageing. The traditional medicine of South-East Asia also uses alcohol as a base for herbal medicines. For example, in Thailand ya dong (a mixture of medicinal herbs in alcohol) is used by women to warm up and cleanse the body after childbirth. Herbs are considered to be more effective and faster acting when prepared in alcohol rather than water. Written records for the years 1650–1800 examining the traditional medicine of the Khoi-Khoi and San, some of the earliest inhabitants of South Africa, record the use of several medicinal plants administered in the form of tinctures. Although decoction of fresh herbs is the most common method used to prepare herbal mixtures in eastern Cuban traditional medicine, they are also macerated in water or alcohol, fried in oil or the juice is extracted. Use of a form of medicated wine/beer known as a galone is also documented.

Vitex agnus-castus

Liquid Extracts in Western Herbal Medicine

History

The Graeco-Roman physician Galen (AD 131–201) was the first to write about liquid preparations of plants, which are called galenicals in honour of his contribution. Examples include decoctions, infusions, liquid extracts, tinctures, vinegars and oxymels (honey + acetic acid). Dioscorides, writing earlier (AD 40–80) describes the action of chaste tree (*Vitex agnus-castus*): "A weight of 1 drachma in wine makes the menses come on earlier, detaches the embryo, attracts the milk, goes to your head and brings sleep". The first official *British Pharmacopoeia*, the *London Pharmacopoeia*, was issued in 1618. It contained a section outlining ethanolic fluid extracts and drew heavily on the classics. Nicholas Culpeper, the 17th-century English herbalist and one of the best-known advocates of western herbal medicine, described the distillation of one or more herbs in wine, and the maceration of spices in alcohol. Single herbs, such as dried wormwood (*Artemisia absinthium*), rosemary (*Rosmarinus officinalis*), eyebright (*Euphrasia officinalis*) were steeped in wine and set in the sun for 30–40 days to make a physical wine. Medicinal plants have been used to prepare tonic wines in France.

Ethanol Strength Determines Quality

Ethanolic liquid extracts and tinctures are the most popular dispensing form amongst modern herbalists. In addition to the longer shelf life, these herbal liquids are more concentrated than infusions and decoctions, allowing a smaller quantity to be dispensed in a dosage. Liquid (or fluid) extracts and tinctures are prepared by macerating or percolating the herb, most often with ethanol/water solutions. Herbs are complex substances, containing a variety of plant constituents contained within cell walls. When preparing to extract, a liquid (the solvent) is chosen that will have the best chance of dissolving the plant constituents. Insoluble constituents are left behind (in the solid waste material, called the marc). Examples of traditionally-used solvents include water, alcohol (ethanol), a mixture of water and ethanol, glycerol (glycerine), vinegar (acetic acid) and vegetable oils. Ethanol is chosen when water-insoluble constituents need to be dissolved (extracted) and when the extract is to be kept for any length of time. The importance of this first function cannot be overstated. Mixtures of water and ethanol are highly efficient for the extraction of a wide variety of plant constituents. However, it is important to choose the correct ethanol percentage in order to maximise the quality of liquid preparations. For example:

- 55% ethanol was found to be the optimum percentage for the extraction of the essential oil from the flowers of chamomile (*Matricaria chamomilla*).
- Around 60% ethanol is a good solvent to extract saponins.
- Higher ethanol percentages do not necessarily mean higher activity.

- Alkylamides, the important active, tingling constituents in good quality Echinacea root, are better extracted at higher ethanol percentages.
- Extracts of St Mary's thistle (*Silybum marianum*) fruit prepared in 25% ethanol or less will not contain the active constituent silymarin, because it is insoluble at this concentration.

Professor Kerry Bone recommends these basic guidelines for the choice of the ethanol percentage to optimise the activity of the final liquid:

- 25%: water-soluble constituents such as mucilage, tannins, and some glycosides (including some flavonoids and a few saponins).
- 45–60%: essential oils, alkaloids, most saponins and some glycosides.
- 90%: resins and oleoresins

It would be very difficult to administer some herbs without using ethanol as a solvent. For example, highly resinous herbs such as myrrh (*Commiphora myrrha*) require extraction using a high percentage of ethanol or the resin remains solid. Ginger (*Zingiber officinale*) also requires 90% ethanol as a solvent, or a poor quality liquid extract, containing low quantities of the pungent (hot) principles (which are part of the oleoresin) would be obtained. Even if extraction using water did dissolve the resinous constituents, they will most likely precipitate out of solution, resulting in a poor quality extract for the patient.

There are however examples where ethanol would not be a suitable solvent. Examples include herbs that require high water solubility. As a consequence slippery elm (*Ulmus rubra*) and psyllium (*Plantago ovata, P. psyllium, P. indica*) are best administered in powder form and mixed in water. Marshmallow (*Althaea officinalis*) root is often prescribed as a glycetract (where glycerol mixed with water is used as the solvent). Glycerol however is a poor solvent for most plant constituents. Ethanol is the best solvent to sterilise the dried plant material when extraction begins and to preserve the resulting extract. For this purpose a concentration of at least 20–25% ethanol is required. In contrast glycerol is a poor preservative. In addition, the stability of the active constituents of glycetracts in the long term has not been documented. It is possible to prepare a liquid extract using ethanol as a solvent, then remove the ethanol and finish making up the liquid extract using glycerol and water. This type of manufacture can be used to prepare St Mary's thistle (*Silybum marianum*) fruit glycetract. Analysis of the glycetract using high performance liquid chromatography (HPLC) can ensure the important flavanolignans (calculated as silymarin) are extracted from the fruit and retained in the final glycetract. If this type of manufacture is not done very carefully however, the resulting liquid extract may be very poor in quality with low levels of active constituents. For example, when extracting essential-oil containing herbs, removal of the ethanol may also remove the essential oil

Silybum marianum

from the final extract. A further reason that this process may not automatically guarantee a quality extract is that some active constituents extracted from the starting herb and made soluble by ethanol may not remain soluble once the ethanol is removed – they may form a precipitate in the final glycerol-water solution. The complexity of herbal extraction cannot be underestimated. The original selection of ethanol percentages was perhaps in large part via trial and error, with information documented and passed down in traditional texts such as the *British Herbal Pharmacopoeia* 1983. In recent times, analytical techniques including HPLC can be utilised to assess the quality of extraction at various ethanol percentages. The HPLC profile of a finished extract ensures the quality of the starting herbal material is retained in the product throughout the manufacture. Use of HPLC can also ensure that the full spectrum of soluble plant constituents is obtained in the extract, not just one or two key active constituents.

Safety of Liquid Extracts

The difference between a therapeutic and a toxic effect is usually only a question of dose. Ethanol is no exception to this rule. A 5 mL dose of herbal extract contains as much ethanol as about one-sixth of a glass of beer or wine. This small intake of ethanol is rapidly metabolised by the liver. It is only a much higher intake of ethanol that overloads the metabolising capacity of the liver and leads to adverse effects.

There are some cases where use of an ethanolic extract is not suitable, e.g. children, Muslims, ex-alcoholics and those with significant liver disorders. (Patients with mild liver conditions are not likely to be adversely affected by a small ethanol intake, such as that from a liquid extract.) In these cases other forms of remedy can be used, such as well-manufactured tablets, or the ethanol content of the liquid extract can be reduced by carefully evaporating off the alcohol (not advised for essential oil-containing extracts).

Like ethanol, the small amounts of glycerol encountered in glycetracts are unlikely to cause an adverse health effect.

However, glycerol is metabolised in a similar way to glucose, so consideration should be given when administering substantial quantities of glycerol to diabetics. A very small minority of patients are genuinely sensitive to alcohol. In others, a presumed sensitivity may be an exaggerated reflex response to the medicine which can usually be alleviated by lower doses at greater frequency, taken with food or water. Because a liquid extract made using a high ethanol percentage may be more concentrated in active constituents, less liquid can be prescribed to achieve a desired therapeutic outcome. As a consequence the patient's ethanol intake could be lower than when prescribing a higher quantity of a low ethanol extract.

* *Written in June 2009 by Michelle Morgan. References available upon request*

The Importance of Quality Herbal Manufacturing

All herbal products in Australia are manufactured under pharmaceutical Good Manufacturing Practice (GMP). This code is a fail-safe system of quality assurance and quality control that defines a number of procedures. In practice, herbal manufacturing under pharmaceutical GMP is more complex than conventional drugs because a herb is biologically defined and:

- May be incorrectly identified
- May vary in chemical content and hence efficacy
- Carries with it a history (eg may be contaminated)
- Processing of herbs may enhance or impair their safety and efficacy
- Stability may be hard to define or measure

It is important that herbal products be manufactured under pharmaceutical GMP, however a specialised knowledge of phytochemistry is also required to effectively deal with these issues. Under the guidance of Professor Kerry Bone, MediHerb has developed an understanding of phytochemistry that is second to none. The work we have done over the past 25 years has influenced the quality of herbal medicines internationally. Herb quality starts with the sourcing of the herb and vigilance is required in every step of the process, right through to how you store your herbs in your clinic.

Sourcing of Herbs

MediHerb is the largest purchaser and processing plant of herbs in Australia and since the beginning we have actively supported Australian and New Zealand herb growers. Our priority is to source herbs from local growers as much as possible and assist with technical support on how best to grow herbs. This support includes information on:

- Varietal selection
- Climatic and soil requirements
- Time of harvest
- Harvesting techniques
- Drying parameters
- Storage requirements post-drying
- Providing feedback to growers on herb quality

By working with herb growers in this way, we have been able to increase the level of knowledge and awareness of issues affecting herb quality.

Wherever possible we aim to source organically grown and wildcrafted herbs, and also work with growers to help cultivate endangered species, for example Golden Seal. We are very fortunate in Australia and New Zealand to have healthy soils and a wonderful climate for herb growing, as a result MediHerb source products from local growers where ever possible.

We also source herbs from overseas where the climatic conditions and specific handling requirements are the optimum, for example Devil's Claw from the Kalahari Desert and Cat's Claw from Peru. It is particularly important for these indigenous communities who depend on the income of the herb crops for their wellbeing that they understand the quality issues and how best to grow or sustainably harvest the herb. Together we can ensure that they will sell their crops and provide income for their community.

Our Policy on Endangered and Threatened Medicinal Plants

MediHerb takes steps to avoid medicinal plants becoming classified as endangered species and has developed a system of identifying and classifying the 'threat' to particular herbs. 'Threatened' is not an official classification, it is determined by MediHerb based on information received from independent, reliable sources such as CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), TRAFFIC (Wildlife Trade Monitoring Network) and United Plant Savers.

When a wildcrafted herb is classified as 'threatened' by MediHerb, steps are taken immediately to find alternatives to overcome or reduce the threat.

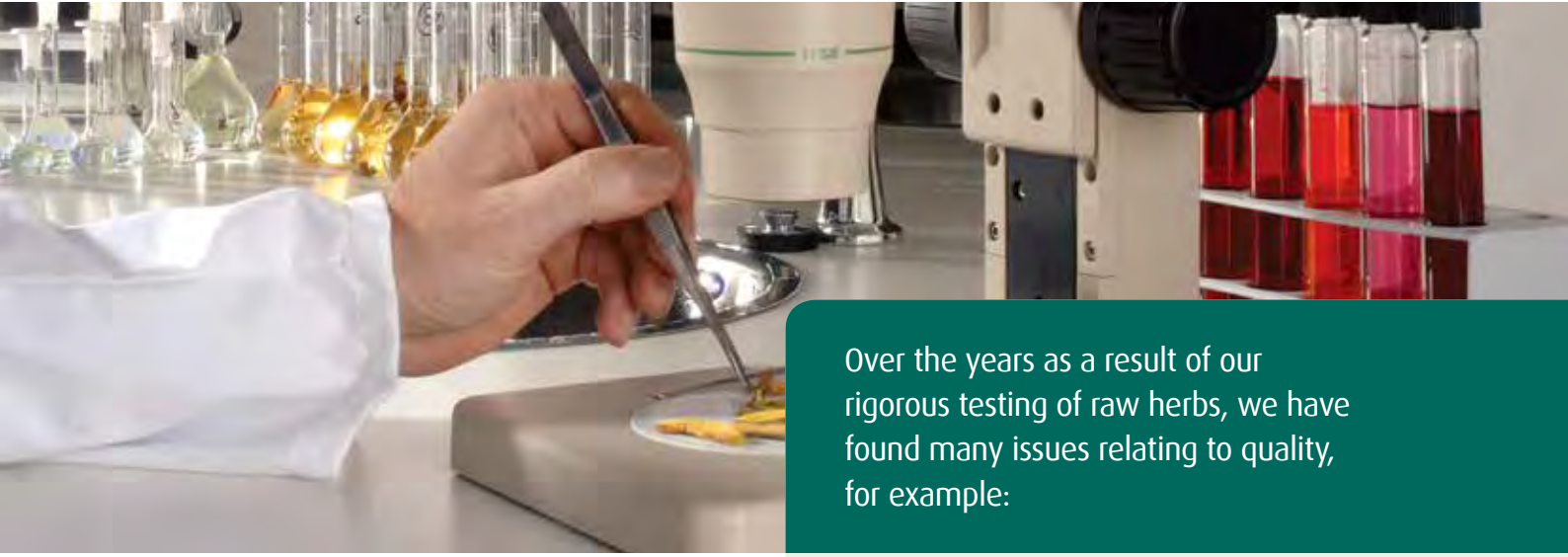
Listed below are guidelines MediHerb has developed to reduce the threat of extinction of medicinal plants:

1. Where the threatened status of a herb is specific to a region or country, MediHerb does not acquire the herb from that region or country, eg Bearberry in parts of South-East Europe.
2. MediHerb uses cultivated herb sources of threatened herbs, where available, eg our Golden Seal is always from a cultivated source.
3. Where no cultivated source is available, MediHerb seeks to establish cultivation in conjunction with herb growers, eg Black Cohosh, False Unicorn Root.
4. If 2 and 3 are not options, MediHerb then investigates the wildcrafting techniques and protocols to ensure they are conducted sustainably and ethically, eg Devil's Claw.
5. In certain cases, substitution of the threatened herb with a medicinally interchangeable species will be possible. This option requires technical and Research and Development involvement, eg Arnica.
6. MediHerb actively promotes using alternate herbs in place of endangered herbs by educating health professionals, eg using Shatavari and Wild Yam rather than False Unicorn (see MediHerb Professional Review No 77, at www.mediherb.com.au).
7. Where a threatened or endangered herb is part of a tablet or liquid formulation, MediHerb will reformulate the product to include a different herb.
8. When a herb is listed in CITES Appendix II and a cultivated source is not available, MediHerb ceases to use that herb and deletes the product from the range, eg Pygeum.

For further information on endangered medicinal plants visit:

www.cites.org
www.traffic.org
www.unitedplantsavers.org

Arctostaphylos uva-ursi



Over the years as a result of our rigorous testing of raw herbs, we have found many issues relating to quality, for example:

- Substitution of *Scutellaria lateriflora* (Skullcap) with other *Scutellaria* spp.
- Replacement of *Scutellaria lateriflora* (Skullcap) with *Teucrium* spp. (Germander).
- Adulteration of *Hydrastis canadensis* (Golden Seal) and substitution with other berberine containing herbs.
- *Centella asiatica* (Gotu Kola) substituted for *Bacopa monnieri* (Bacopa).
- Substitution of *Stephania tetrandra* by *Aristolochia* spp., which has the potential to cause kidney failure.
- Samples of *Andrographis paniculata* (Andrographis) upon testing at MediHerb, revealed to have no andrographolide content (the active constituent).
- Samples of *Vaccinium myrtillus* (Bilberry) upon testing at MediHerb, were found to contain a colouring agent, in order to imitate anthocyanins (the quality marker responsible for the blue colour in ripe Bilberries) (search for Bilberry Poster at www.mediherb.com.au).
- Samples of *Ginkgo biloba* found to be deliberately spiked with rutin.
- Adulteration of *Crataegus monogyna* (Hawthorn), *Vitex agnus-castus* (Chaste Tree) and *Turnera diffusa* (Damiana) extracts with rutin.
- Surveillance of *Echinacea angustifolia* products found none to have appropriate levels of important constituents, alkylamides.
- *Dioscorea villosa* (Wild Yam) found to be commonly substituted with *Dioscorea opposita.*
- Samples of *Uncaria tomentosa* (Cat's Claw) found to be the wrong chemotype.
- *Tribulus terristris* commonly found to be lacking in important constituent, protodioscin.

Quality Assurance of Herbs (Identity and Purity)

Before any herb is purchased, a sample of the batch being offered for sale is analysed by the Quality Control Laboratory and compared to the quality criteria specified by MediHerb. At this point, we regularly reject herbs as only the herbs that meet or exceed the strict quality criteria are purchased.

When we receive the purchased batch of herb, it is sampled according to a statistically valid sampling plan and then subjected to the same battery of tests as the pre-purchase sample. Only if the herb passes this second set of tests is the batch accepted into the factory for further processing.

Depending upon the specific herb, the quality assurance process includes testing herbs for:

- Colour
- Aroma
- Texture
- Content of specified actives
- Thin Layer Chromatography fingerprinting
- Microbial levels
- Amount of extraneous matter
- Pesticides and herbicides
- Heavy metals
- Aflatoxins
- Radiation levels

Our stringent testing regimes guard against:

- **Substitution of species:** one herb may be substituted for another less costly herb
- **Adulteration of herbs:** a high quality and expensive herb may have a cheaper herb or even a pharmaceutical mixed in with it
- **Poor quality of herbs:** herbs can vary enormously in quality and this means the effect you and your patients feel, can vary enormously

This ensures that the herbs approved for use in MediHerb products are of the correct species, are the correct plant part, have the correct active constituent profile and are free from contamination. Therefore you as the clinician can rest assured that the MediHerb product contains exactly what it says on the label.

Quality Assurance of Herbs (Identity and Purity)

Raw Material is sourced from quality herb suppliers worldwide

Pre-shipment sample requested

Samples sent to lab for:

- Identification (TLC fingerprint)
- Validation (species, plant part)
- Efficacy (actives, phytochemical profile)

Chromatography

Method used to separate the phytochemicals in a herbal extract into individual components

Also tested for:

- Macro/microscopic analysis
- Pesticides/heavy metals/ radiation
- Aflatoxins
- Microbial levels

Thin Layer Chromatography (TLC):

The liquid extract is spotted onto a silica gel plate which is then placed into a trough containing solvent. The solvent then separates the extract into a series of bands (phytochemicals) characteristic to the plant

High Performance Liquid Chromatography (HPLC):

The herbal extract is injected into a liquid stream which is carried onto a column and separated into its various constituents. These are then detected when they exit the column. Normally with Photo-Diode Array (PDA) which measures the absorption spectrum of each chemical constituent. However, not all constituents can be seen by PDA and therefore Evaporative Light Scattering Detection (ELSD) and Mass Spectrometry (MS) are also used to detect compounds such as saponins

Gas Chromatography (GC):

This method works only for volatile chemicals. The herbal extract is inserted into a hot injector block and the volatile constituents pass onto the heated column which separates the constituents based on their boiling point. The existing chemicals are then burnt in a flame and the resultant electric signal is detected

Mass Spectrometry (MS)

Method used to separate the phytochemicals in a herbal extract into individual components

Order is placed **ONLY IF** the above quality criteria have been met

Order arrives
Quarantined Samples taken

To Lab: All QA procedures detailed above are repeated on the purchased batch samples

When, and only when, all aspects of quality control of the raw material are confirmed, will the manufacture of MediHerb products begin. A herb is sent back if it does not comply

Storage and Handling of Herbs

After approval by the Quality Assurance process, all herbs are transferred to our refrigerated warehouse, which is maintained at a constant 15°C and 40% humidity.

Refrigerated storage, although expensive to maintain, avoids the need for any pesticides to be used for insect control. This ensures our organic herbs remain organic and that all our herbs remain free of insect contamination prior to processing.

Herbs are handled and processed at every stage with the utmost care. For example, herbs are milled in preparation for extraction under very low temperature cryogenic conditions to protect against excessive heating, which can damage the fragile active components.

Quality of Extraction: The Birth of MediHerb

MediHerb was co-founded by Kerry Bone, a first class honours graduate of Melbourne University who won the Masson Memorial Prize as Australia's top Chemistry student. Whilst working as a research scientist, Kerry studied naturopathy at the Southern School of Natural Therapies for two years before deciding to relocate to the UK to study phytotherapy in-depth.

Upon completing the four-year Diploma in Phytotherapy from the world renowned School of Phytotherapy in England, he returned to Australia to practice. However he became

increasingly frustrated with the poor quality of herbal extracts available at that time and the resulting effects for his patients. By applying his scientific training he set about developing an extraction method that would be strong enough to enable therapeutic doses (like a 1:1), but preserve the full phytochemical spectrum of the starting herb (like a 1:5 tincture). This led to the development of a unique method of extraction, 1:2 Cold Percolation. Word of these high quality herbal products spread and requests were soon received from health care professionals for supply around Australia and so MediHerb was born.

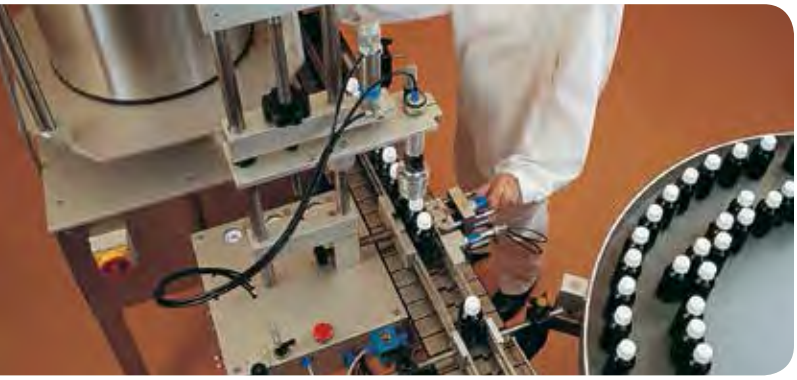
Berberis vulgaris

Why 1:2?

When Kerry Bone set about to develop his own liquid extracts he was faced with a problem. 1:1 liquid extracts theoretically provided a 'stronger' extract, however they also left behind a lot of the phytochemistry of the herb. A true, well-made 1:1 liquid extract cannot be made without using a concentration step (meaning that at least 2L of percolate needs to be produced for every 1kg of herb, which is then concentrated back to 1L). This problem occurs because of the bulky nature of most herbs means that the volume of 1kg generally far exceeds the volume of 1L of liquid. Hence 1:1 liquids can mean that phytochemicals are lost or changed during the concentration step or the herb is poorly extracted by limiting the amount of solvent, leaving most of the phytochemicals still in the raw herb.

Tinctures such as 1:3 and 1:5 solve this problem by providing a true full galenical extract that accurately reflected the chemistry of the original plant, however large volumes would need to be consumed in order to achieve a therapeutic dose.

This led Kerry to develop 1:2 extracts made by cold percolation as they represented the best of both worlds. Similar to tinctures, they didn't need heating or concentrating which could damage the delicate balance of the phytochemical spectrum of the original herb, however they were sufficiently potent to allow the convenient use of therapeutic doses.



Unique Extraction: 1:2 Cold Percolation Process

The MediHerb 1:2 Cold Percolation method is unlike other herbal extraction processes; no heat or concentration is used, both of which may cause damage to the delicate plant material. The greatest care is taken to prevent any contamination from outside sources throughout the extraction process:

- All extraction equipment is designed and built from stainless steel.
- Air used in the manufacturing complex is thoroughly cleaned using pharmaceutical standard filtering units.

In addition to the herb itself, we use only two other raw materials in manufacturing our herbal extracts, ethanol and purified water. Both are chosen very carefully to ensure the most efficacious product and meet pharmaceutical standard specifications.

All process water used in extraction is purified by reverse osmosis. First, it is filtered through numerous filter beds to remove particulate matter and organic compounds, then passed through reverse osmosis cartridges to remove the ionic materials before finally passing through an ultra-fine filter. The water produced is very low in all contaminants – organic, ionic and particulate – and is tested to comply with the *British Pharmacopoeia* specification for purified water BP2014.

MediHerb only uses ethanol that complies with the *British Pharmacopoeia* specification for ethanol, BP2014. Ethanol is essential to extract the full phytochemical profile of the plant, this cannot be achieved using water or glycerol alone. Ethanol has been used for hundreds of years in herbal extraction and old herbal texts discuss steeping herbs in wine over long periods. The human liver is naturally conditioned to metabolise small amounts of ethanol from ripe fruit and naturally fermented food. Any toxic effects from ethanol are dose-related and there is minimal risk of potential ethanol toxicity with herbal extracts due to the low daily dosage required. The usual recommended dose of most 1:2 herbal extracts is only 5 mL three times per day and in 5 mL there is approximately the same amount of ethanol as 1/6 of a standard glass of beer or wine.

Quality Guaranteed – The MediHerb 'Quantified Activity' Program

The MediHerb Quantified Activity (QA) program aims to establish meaningful quality guidelines for the manufacture of herbal extracts. It is a system for ensuring the production of consistent quality extracts with guaranteed minimum levels of active constituents.

To date, MediHerb has quantified the activity of over 70 herbs through this program. To our knowledge such a program has never been undertaken in Australia, nor has it been matched anywhere in the world.

The constituents chosen as 'quality indicators' are carefully selected under the guidance of Kerry Bone and represent the most up-to-date scientific knowledge available.

The process of developing Quantified Activity extracts is complex and involves many steps.

However, once the constituents are selected and the quantified activity levels are set, the main focus is to ensure the supply of consistent quality raw material and the retention of the constituents throughout the manufacturing process.

It is important to point out that Quantified Activity extracts are not purified single constituent extracts. They are whole galenical extracts of carefully selected whole herbs, manufactured using the MediHerb 1:2 Cold Percolation process, and still contain the complex range of active constituents from the raw herb.

Quantified Activity and Standardisation

At times, we receive a herb that has higher levels than our minimum specification, so you as the practitioner receive that higher level of activity. We never dilute to meet a minimum specification. Herein lies the difference between Quantified Activity and standardisation. With standardisation, extracts with an active level that exceeds the specified standard would then be diluted to fall within that standard. (For more information on standardisation view the MediHerb Professional Library at www.mediherb.com.au)

With the MediHerb Quantified Activity program, we have linked together all of the possible parameters that can affect product and extract quality and can guarantee that a high quality, efficacious extract will be produced every time.

MediHerb Manufacturing Processes & Quality Control for Herbs

This Chart follows on from the Quality Assured Sourcing of Herbs Chart on page 13

Cool room storage of herbs for quality assurance

Minimises degradation of actives, control of insects, ideal storage condition for raw materials whose actives can degrade

Raw material milled under cryogenic conditions so no heat can affect the phytochemicals

Proprietary Cold Percolation

A unique slow process over 7–10 days known ONLY to MediHerb, developed by Kerry Bone, to extract the full spectrum of compounds of the herb without causing damage or degradation

Liquid Extracts

The majority of our liquid extracts are made as 1:2 liquid extracts as this is the most effective method to extract the full phytochemical profile in a convenient dosage unit. However we also make liquid extracts with other ratios depending on the optimum extraction of the individual herb

Samples sent to the QA Laboratory where they are analysed for phytochemical profile, level of actives, consistency, verification of original herb with no deterioration or degradation. This is the third round of testing performed. **When the extract meets all criteria**

Bottled for Sale


Ginkgo biloba

Standardised Extracts: A Balanced Perspective

In those cases where there is strong clinical data supporting the use of a particular standardised extract, MediHerb has adopted that standard and dosage approach for its tablet products. A good example is *Ginkgo biloba*.

There is considerable controversy and misinformation over the use of standardised extracts. Many of these are in fact full spectrum galencial extracts, made by traditional extraction with ethanol and water, which are merely produced to a consistent quality marker (or markers). No adulteration of the extract has taken place and isolated phytochemicals have not been added to the extract. Good examples of these are Devil's Claw, St John's Wort and Horsechestnut. In addition, MediHerb's extensive quality control procedures are capable of detecting adulterated or "spiked" extracts. Such extracts are never used in MediHerb products. For more information on this complex topic see Kerry Bone's articles (Modern Phytotherapist Vol 6, No 1 & 2 at www.mediherb.com.au).

Phytoequivalence

Phytoequivalence is a concept that was developed in Germany in the mid-1990s, and means that one herbal extract matches, or is equivalent to, another herbal extract, more specifically to one of the clinically-proven extracts.

It is somewhat of a misnomer as phytoequivalence really means chemical equivalence, ie that the two extracts have the same chemical profile. But it was also intended to mean more than that. Extracts that are phytoequivalent should be able to demonstrate the same pharmacological or physiological activity when ingested by humans. This is however difficult to demonstrate (for example, it could be done by showing the similarity of the levels of marker compounds (or their derivatives) in the bloodstream of humans after oral doses of the two products). A marker compound is a characteristic compound used to represent the quality standard for a standardised extract – it is often, but, not necessarily, one of the pharmacologically active compounds.

At the very least a match of the chemical profile, such as a chromatographic fingerprint, which outlines the full chemical spectrum of the extract is required. Comparison with the reference (clinically-proven) extract should indicate the presence of **all** major constituents, and the same levels of marker compounds and similar levels of **all** other measurable constituents. It is important to realise that phytoequivalence is **not** demonstrated by just comparing the level of only one or two marker compounds.

Obtaining a good chromatographic fingerprint (usually by high performance liquid chromatography (HPLC)) for investigating phytoequivalence for a herb depends on several factors:

- A good extraction method to obtain almost all the pharmaceutically active compounds.
- A chromatogram with good separation.
- A representative concentration profile of the bioactive components detected by a proper detector.

Bulgarian clinical trials have shown that Tribulus herb (aerial parts) extract rich in protodioscin enhances libido and fertility and alleviates menopausal symptoms. If a Tribulus product is made from the root or fruit of the plant, or is sourced from anywhere else other than Eastern Europe, it will probably contain low levels of protodioscin and so will be quite different to the clinically-proven Bulgarian standardised extract. This is despite what might be claimed on the label for such products because often inferior methods of analysis have been used to measure the furostanol saponins (which includes the marker compound, protodioscin), such as gravimetric or colorimetric techniques. The phytoequivalence and quality of Tribulus products is best assessed by HPLC.

In a paper published in 2004, researchers from China compared 18 fingerprints of *Ginkgo biloba* extracts purchased from pharmaceutical stores, companies and collected from producing areas of China. All of these samples were supposed to meet the standard for flavonoids measured by ultraviolet spectroscopy. Standardised extract of Ginkgo from Europe was the clinically-proven extract used as the reference for phytoequivalence. The samples looked similar in the HPLC chromatograms, however further statistical analysis of this data indicated problems with three samples. A peak in two samples around the retention time of 10 minutes was much higher than the peak in the standardised Ginkgo extract, and was found to be the flavonoid rutin which had been added (in order to meet the old, UV spectroscopy standard). Inferior clinical results might well have been obtained using these non-phytoequivalent extracts. MediHerb goes to great lengths using sophisticated analytical methodology to ensure that products such as standardised Ginkgo 2:1 liquid extract are phytoequivalent to the clinically-trialled products.

The Echinacea QA Story

Echinacea is MediHerb's earliest quality story and a good example to explain the Quantified Activity program.

When MediHerb first started manufacturing in 1986 there was confusion in the global herbal industry over what constituted authentic Echinacea. *Echinacea angustifolia* and *E. purpurea* were routinely being substituted by unsuspecting manufacturers with another herb, *Parthenium integrifolium*. The substitution was made possible due to the uncanny physical similarity of the roots of Parthenium and especially *Echinacea purpurea*.

The solution implemented by MediHerb to guarantee supply of authentic Echinacea led to the development of the "Quantified Activity" program which exposed the Parthenium/Echinacea substitution and helped establish MediHerb's credibility in the herbal industry.

The earliest methods employed by MediHerb to assess herb quality and identity relied on a trained herbalist checking the herb's physical appearance, colour, odour and taste. Taste was of particular importance because of the insight it gave into the herb's chemistry.

Traditionally, the test for Echinacea quality was the ability of the root to cause an intense tingling sensation in the mouth when chewed. The substitution of *Parthenium integrifolium* for Echinacea was successful only if appearance was checked and taste was not. When chewed, Parthenium root did not cause any tingling sensation in the mouth. The components which cause the tingling sensation from Echinacea are called alkylamides. So, one very simple solution was to taste the roots!

As MediHerb developed more sophisticated analyses, thin layer chromatography (TLC) was adopted which allowed the gross aspects of Echinacea's chemistry or its "chemical finger-print" to be compared to a certified reference sample from the correct species. However, TLC mainly demonstrates if a compound is present, but not its quantity.

MediHerb understood that alkylamides were important for the efficacy of Echinacea and began to investigate methods to quantify the alkylamides along with other important compounds such as cichoric acid. At the time there was no published test methodology for alkylamides and the process of developing the high performance liquid chromatography (HPLC) methodology took MediHerb a number of years.

Once armed with the HPLC methodology for identifying quality in terms of alkylamide content, MediHerb worked with Echinacea growers to determine appropriate growing conditions and handling parameters to ensure optimum retention of the alkylamides. Internally, MediHerb established protocols to ensure optimum retention and stability of alkylamides during all phases of the production process; from receipt of the raw material to completion of the finished product. Alkylamides are very delicate compounds and are easily damaged or lost during processing, hence developing these protocols took many years to conclude.

From these exacting analyses MediHerb was able to establish our standard for acceptance of Echinacea raw material based on alkylamide content. The task then was to work with herb growers to ensure that we were able to consistently source the herb according to our specification. Using our validated 1:2 Cold Percolation process we could then be confident that we would always extract a known amount of alkylamides along with all the other active compounds in every batch. Thus ensuring a consistent quality product with "Quantified Activity", every batch, every time.

The research into Echinacea continues today and our most recent efforts are aimed at further improving quality and efficacy, and understanding how Echinacea works.

Herbal Liquid Dosage & Blending

The dosages recommended Kerry Bone and MediHerb are determined by the best available evidence. Appropriate dosages for modern phytotherapy should be consistent with:

- Dosages used by important historical movements in western herbal medicine, eg the Eclectics.
- Dosages currently recommended in pharmacopoeias or by expert committees (such as the German Commission E and ESCOP); dosage ranges used in other important herbal traditions eg China and India.
- Dosages established from pharmacological and clinical research.
- The recommended dose for all MediHerb liquids are contained on each product entry. There is also a summary dosage chart on page 102.

Preparing a Formula Based on Weekly Dosages

Arriving at a formula can be done in a variety of ways but one of the easiest is to use weekly doses. If a patient is to take 5 mL of a formulation, 3 times a day (15 mL per day), the total amounts to 105 mL which can be rounded down to 100 mL. The herbs in the formula can then be assigned appropriate doses by referring to their weekly dosage range. Generally formulations should contain less than 7 herbs. If using 1:5 tinctures, fewer herbs should be used in the formulation to ensure no less than the weekly dosage. This 100 mL formula can then be multiplied by the number of weeks you would like to the patient to take the formula for. An example formulation is below:

Liquid	Weekly Dose Range	Selected Dose	Dose for 2 weeks
Elder Flower 1:2	15-40 mL	20 mL	40 mL
Echinacea Angustifolia 1:2	20-40 mL	25 mL	50 mL
Licorice 1:1	15-40 mL	20 mL	40 mL
White Horehound 1:2	15-40 mL	25 mL	50 mL
Ginger 1:2	5-15 mL	10 mL	20 mL
Total		**100 mL**	**200 mL**

Glycyrrhiza glabra

Children's Dosage

For calculating doses for children a number of methods can be used. These values are only approximate because of the complex metabolic changes that occur during growth and maturation. MediHerb and Kerry Bone recommend Salisbury's Rule for children over 2 year as it is based on weight rather than age and Fried's Rule for children under 2 years.

Salisbury Rule (Children over 2 years)

weight (kg) x 2 (if weight is less than 30kg)#
weight (kg) + 30 (if weight is greater than 30kg)#

This gives the percentage of the adult dose

Fried's Rule (Children under 2 years old)

age in months ÷ 150*

* *multiply this result by adult dose*

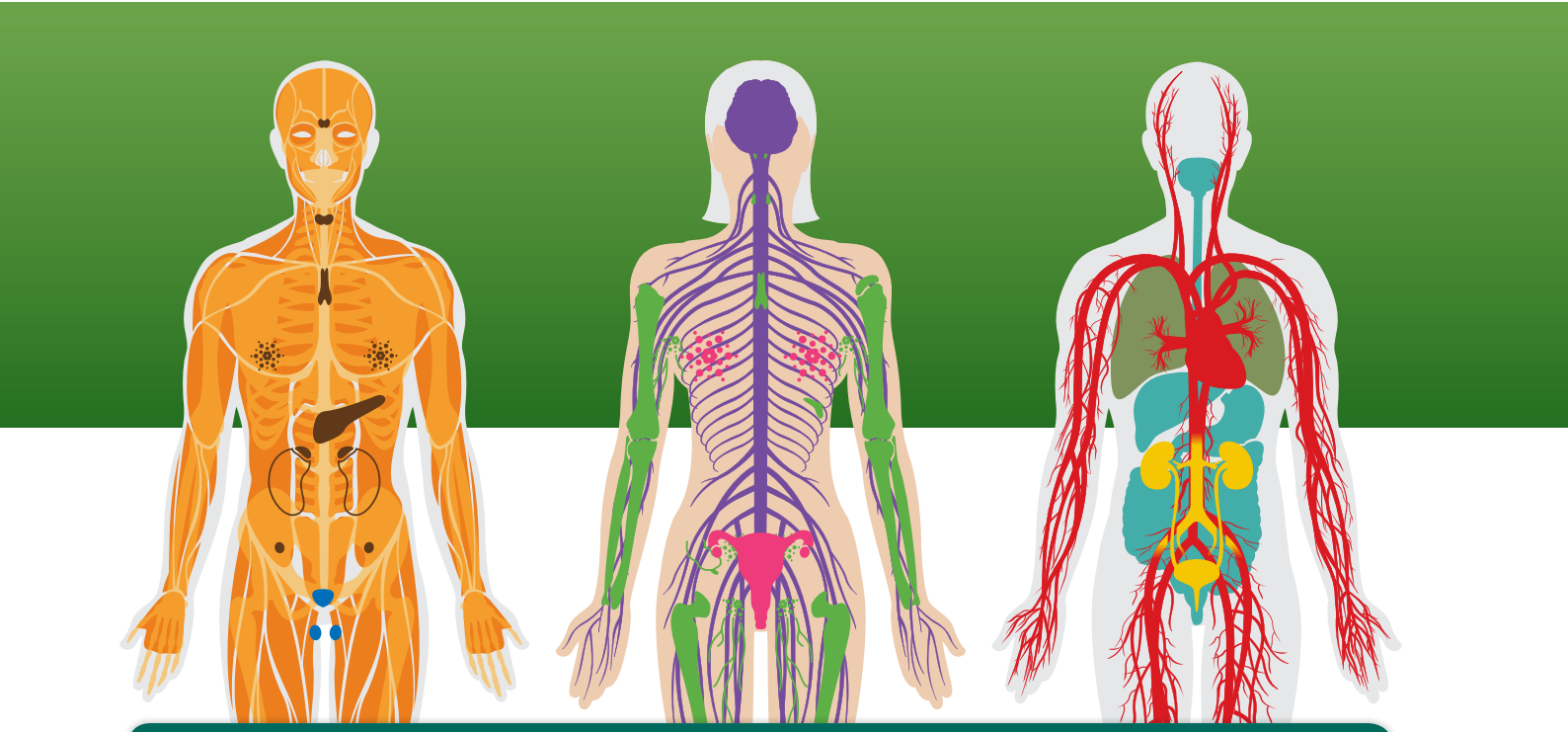
$$\frac{\text{Age in months}}{150} \times \text{adult dose} = \text{child's dose}$$

Liquid Blending Considerations

Incompatibilities when blending liquid extracts can occur and can affect the efficacy of the formulation. Generally avoiding any precipitation of blended herbal liquids is impossible which is why liquid mixtures should always carry the directions "Shake the bottle well before pouring"

There are some simple guidelines which can be followed to avoid these incompatibilities:

1. Tannin containing herbs (eg Agrimony) are incompatible with alkaloid containing herbs (eg Golden Seal). If blended a precipitate will form. Tannins and alkaloids should be dispensed separately and taken at different times.
2. Bladderwrack is also not compatible with tannin containing herbs.
3. Herbs extracted in a high percentage of alcohol (eg Ginger, Myrrh) often contain resins that precipitate when mixed with liquids of lower alcohol percentage. To avoid this include a small amount of Licorice (10%) in the formula. The saponins in the Licorice act as an emulsifying agent keeping everything in suspension. The Licorice should be added first before adding the resinous liquid.
4. Mix herbal liquids in ascending order in terms of their ethanol content.
5. Mucilaginous herbs (eg Marshmallow root) are not compatible with high ethanol extracts and should be dispensed separately.



Top 40 Dispensary Essentials

Andrographis 1:2	
Astragalus 1:2	
Black Cohosh 1:2 **QA**	
Calendula 1:2	
Celery Seed 1:2 **QA**	
Chamomile 1:2	
Chaste Tree 1:2	
Cramp Bark 1:2	
Dandelion Root 1:2	
Dong Quai 1:2	
Echinacea Premium Blend 1:2 **QA**	
Eyebright 1:2	
Ginger 1:2	
Ginkgo Biloba 2:1 **S**	
Globe Artichoke 1:2	
Golden Seal 1:3 **QA**	
Gotu Kola 1:1 **S**	
Gymnema 1:1	
Hawthorn Leaves 1:2 **QA**	
Kava 1:1 **S**	
Korean Ginseng 1:2 **S**	
Lemon Balm 1:2	
Licorice High Grade 1:1 **QA**	
Paeonia 1:2	
Passionflower 1:2	
Pelargonium 1:5	
Rehmannia 1:2	
Rhodiola 2:1 **S**	
Saw Palmetto 1:2	
Schisandra 1:2	
Shatavari 1:2	
Siberian Ginseng 1:2 **S**	
Skullcap 1:2	
St John's Wort High Grade 1:2 **QA**	
St Mary's Thistle 1:1 **QA**	
Tribulus 2:1 **S**	
Turmeric 1:1	
Wild Yam 1:2 **QA**	
Withania 2:1 **S**	
Zizyphus 1:2	

Top 40 Dispensary Essentials & Body Systems Index

This index highlights the top 40 essential liquids for your dispensary. The remaining liquid extracts are categorised by primary body system for your easy reference.

Dispensary Essentials Alternatives

Calendula Low Alcohol 1:2	
Echinacea Regular Blend 1:2 & F/P	
Echinacea Purpurea Glycetract 1:3	
Golden Seal 1:5	
Hawthorn Berries 1:2 **QA**	
Licorice 1:1	
St John's Wort 1:2 **QA**	
St Mary's Thistle Glycetract 1:1 **QA**	
Flavouring Mixture	

Digestive System

Aloes Resin 1:10		Gentian 1:2	
Barberry 1:2		Greater Celandine 1:2	
Black Walnut (Green Hulls) 1:10		Marshmallow Root 1:5	
Bupleurum 1:2		Marshmallow Root Glycetract 1:5	
Butternut 1:2		Meadowsweet 1:2	
Cascara 1:2		Peppermint 1:2 **QA**	
Chen Pi (Mandarin Peel) 1:2		Qing Hao 1:2	
Fennel 1:2		Rosemary 1:2 **QA**	
Fringe Tree 1:2		Senna Pods 1:2	
Garlic 1:1 F/P		Wormwood 1:5	

Cardiovascular & Circulation

Agrimony 1:2		Mistletoe 1:2	
Bilberry 1:1		Motherwort 1:2	
Butcher's Broom 1:2		Olive Leaves 1:2	
Cayenne 1:3		Prickly Ash 1:2	
Dan Shen 1:2		Shepherd's Purse 1:2	
Horsechestnut 1:2		Tienchi Ginseng 1:2	

Endocrine General

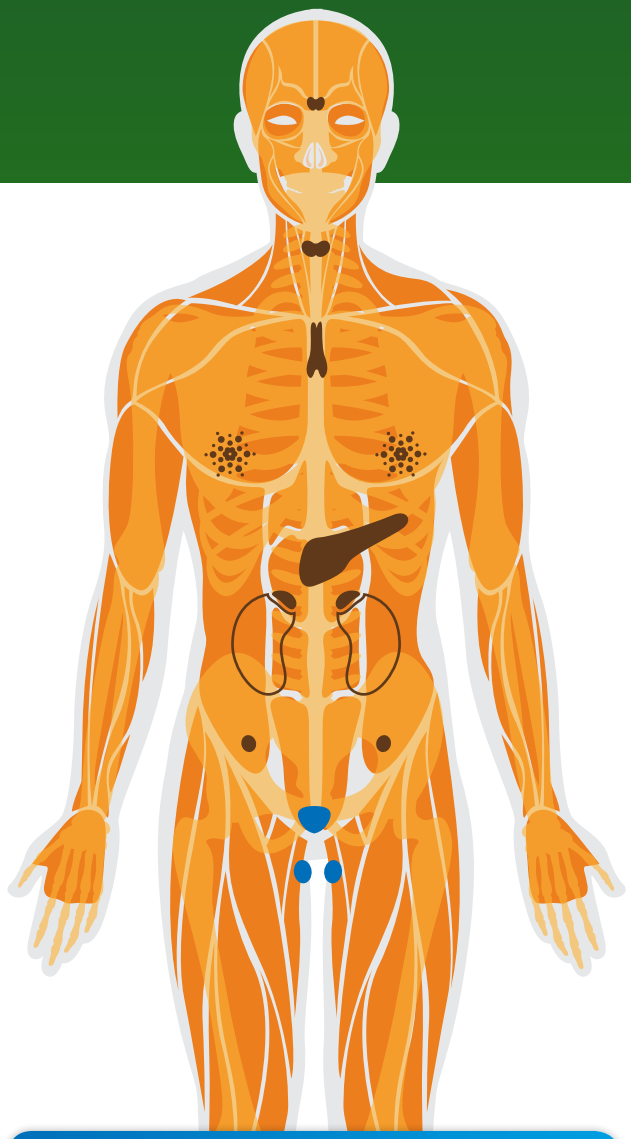
Bladderwrack 1:1		Coleus 1:1 **QA**	
Bugleweed 1:2		Fenugreek 1:2	
Cinnamon Quills 1:2		Goat's Rue 1:2	
Codonopsis 1:2		Nigella 1:2	

Body Systems Legend

QA = Quantified Activity S = Standardised

Musculoskeletal	Urinary System	Respiratory	Female Endocrine
Endocrine General	Skin	Cardiovascular & Circulation	Immune
Male Endocrine	Nervous System	Digestive System	

Top 40 Dispensary Essentials & Body Systems Index



Female Endocrine

Beth Root 1:2	Raspberry Leaves 1:2
Blue Cohosh 1:2	Sage 1:2 **QA**
False Unicorn 1:2	Squaw Vine 1:2
Ladies Mantle 1:2	True Unicorn 1:2
Pasque Flower 1:2	

Immune

- Albizia 1:2
- Baical Skullcap 1:2
- Baptisia 1:2
- Cat's Claw 1:2 **QA**
- Echinacea Angustifolia Root 1:2 **QA**
- Echinacea Purpurea Root 1:2 **QA**
- Elder Flowers 1:2
- Feverfew 1:5 **QA**
- Hemidesmus 1:2
- Lime Flowers 1:2
- Myrrh 1:5
- Propolis 1:5
- Thuja 1:5
- Yarrow 1:2

Male Endocrine

Nettle Root 1:2	Willow Herb 1:2

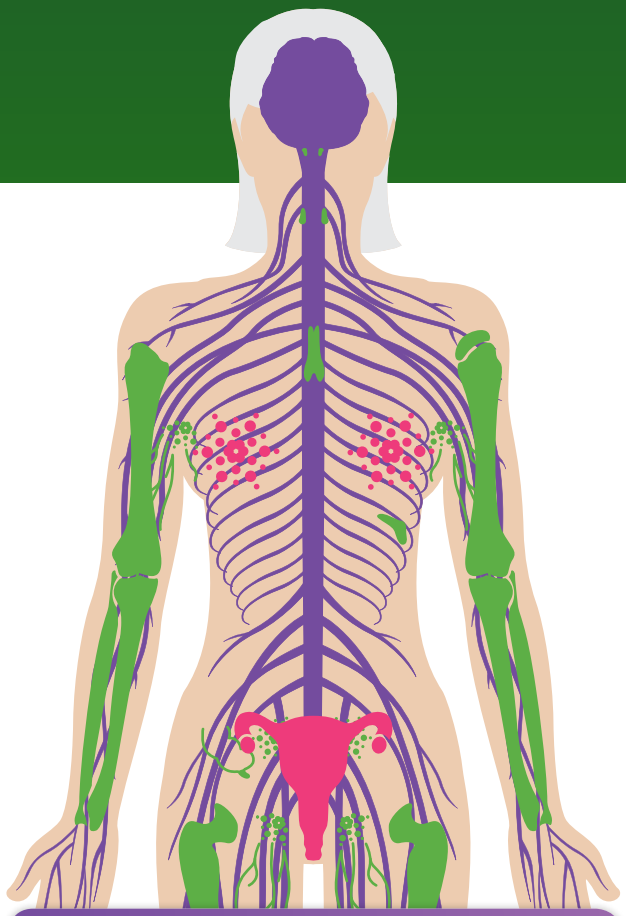
Musculoskeletal

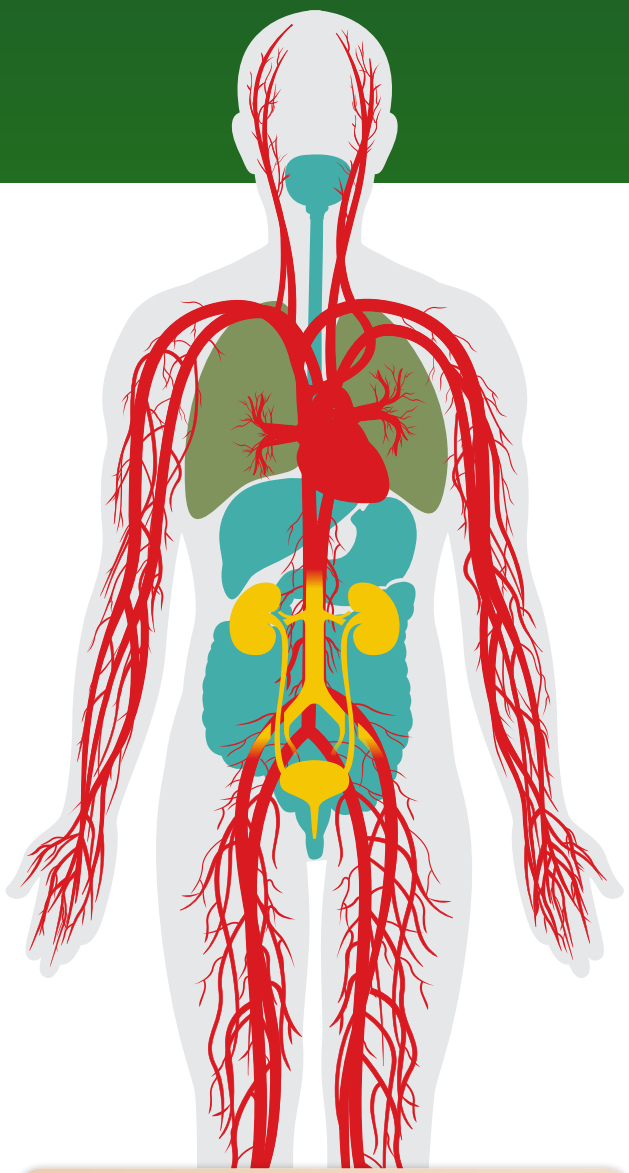
Arnica 1:5	Willow Bark 1:2
Devil's Claw 1:2	

Body Systems Legend

QA = Quantified Activity S = Standardised

Musculoskeletal	Urinary System	Respiratory	Female Endocrine
Endocrine General	Skin	Cardiovascular & Circulation	Immune
Male Endocrine	Nervous System	Digestive System	





Nervous System

Bacopa 1:2	E	Mexican Valerian 1:2	
Californian Poppy 1:2		Oats Green 1:2	
Corydalis 1:2	♀	Oats Seed 1:1	
Damiana 1:2	♂ ♀	Saffron 1:20	
Hops 1:2		Valerian 1:2	
Jamaica Dogwood 1:2	♀	Vervain 1:2	
Lavender 1:2		Wood Betony 1:2	

Respiratory

Adhatoda 1:2	♀	Poke Root 1:5	
Elecampane 1:2		Ribwort 1:2	
Euphorbia 1:2		Sundew 1:5	
Golden Rod 1:2		Thyme 1:2 **QA**	
Grindelia 1:2		Violet Leaves 1:2	
Horseradish 1:2		White Horehound 1:2	
Mullein 1:2		Wild Cherry 1:2	
Pleurisy Root 1:2			

Skin

Blue Flag 1:2		Red Clover Flowering Tops 1:2	
Burdock 1:2		Red Clover Flowers 1:2	
Clivers 1:2		Sarsaparilla 1:2	
Nettle Leaf 1:2		Yellow Dock 1:2	
Oregon Grape 1:2			

Urinary System

Bearberry 1:2	♂	Crataeva 1:2	
Buchu 1:2	♂	Dandelion Leaves 1:1	
Corn Silk 1:1	♂	Gravel Root 1:2	♂
Couch Grass 1:1	♂	Horsetail 1:2	♂

Adhatoda 1:2

Botanical Name:	*Justicia adhatoda*
Plant parts used:	Leaf
Ethanol content:	45%

Major Actions

Expectorant, antispasmodic, bronchodilator (mild).

Major Indications

- Relief of bronchitis and cough.#

Contraindications and Cautions

Contraindicated in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–25 mL/week

Agrimony 1:2

Botanical Name:	*Agrimonia eupatoria*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Astringent (mild), diuretic.

Major Indications

- Relief of diarrhoea, haemorrhoids, to support healthy bladder function.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

15–30 mL/week

Albizia 1:2

Botanical Name:	*Albizia lebbeck*
Plant parts used:	Bark
Ethanol content:	23%

Major Actions

Antiallergic, depurative.

Major Indications

- Relief of the symptoms of allergies.#
- Skin conditions.#

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–60 mL/week

traditional use (Ayurveda)
* traditional use (Western herbal medicine)

Aloes Resin 1:10

Botanical Name:	*Aloe* spp.
Plant parts used:	Resin
Ethanol content:	23%

Aloe spp.

Major Actions

Stimulant laxative.

Major Indications

- Relief of constipation.*

Contraindications and Cautions

Do not use in intestinal upsets, including irritation and inflammations. Do not use for prolonged periods or in children under 12 years. Caution is advised in pregnancy and lactation. Avoid use in those trying to conceive. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Laxative herbs*).

Dosage and Administration

10–30 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Andrographis 1:2

Botanical Name:	*Andrographis paniculata*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Bitter tonic, liver tonic, diaphoretic, immune enhancing.

Major Indications

- Loss of appetite, sluggish liver, flatulence, indigestion, fatigue.#
- Relief of fever.#
- Relief of influenza, sore throat.^
- Relief of diarrhoea.#
- Often combined with aromatics or warming herbs, such as ginger.#

Contraindications and Cautions

Avoid during early pregnancy. Caution in peptic ulcer and hyperacidity. Professional supervision is suggested for mid to late pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

traditional use (Ayurveda)
* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Arnica 1:5

Botanical Name:	*Arnica montana*
Plant parts used:	Flower
Ethanol content:	45%

Major Actions

Topically only: anti-ecchymotic (against bruises), anti-inflammatory, analgesic.

Major Indications

- Topically for bruises, sprains, unbroken chillblains.*
- Topically for temporary relief of the pain of osteoarthritis.†
- Topically for relief of heaviness and swelling in the legs.†
- Topically for relief of muscle ache.†

Contraindications and Cautions

Contraindicated in those with known allergy to Arnica. Apply only to unbroken skin, withdraw on first sign of dermatitis. Do not apply near the eyes or mouth. Not for prolonged external application. Use with caution in those with known sensitivity to other members of the Compositae family, or to plants from other families with sesquiterpene lactones which are chemically related to Arnica (such as Lauraceae).

Dosage and Administration

External use only.

Refer to page 97 for how to make topical preparations.
To make a cream, use 3 mL in 50 grams of vitamin E cream.

Astragalus 1:2

Botanical Name:	*Astragalus membranaceus*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Tonic, immune enhancing.

Major Indications

- Supports relief of colds, influenza and bronchitis.^
- Fatigue.^

Contraindications and Cautions

Not advisable in acute infections. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

* traditional use (Western herbal medicine)
† clinical trial (controlled)
^ traditional use (traditional Chinese medicine)

Bacopa 1:2

Botanical Name:	*Bacopa monniera*
Plant parts used:	Herb
Ethanol content:	23%


Bacopa monniera

Major Actions

Nervine.

Major Indications

- As a tonic when run down or tired.#
- To support healthy cognitive function in children.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

35–90 mL/week

Baical Skullcap 1:2

Botanical Name:	*Scutellaria baicalensis*
Plant parts used:	Root
Ethanol content:	60%


Scutellaria baicalensis

Major Actions

Anti-inflammatory, bitter.

Major Indications

- Relief of cough, fevers, respiratory catarrh.^
- Relief of diarrhoea.^
- Supports healthy liver function.^

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Baptisia 1:2

Botanical Name:	*Baptisia tinctoria*
Plant parts used:	Root
Ethanol content:	60%

Major Actions

Antiseptic, antipyretic, immune enhancing, depurative.

Major Indications

- Relief of upper respiratory tract infection, inflammations of the mouth or throat, mouth ulcers, sore gums, enlarged lymph glands.*
- To support feverish conditions.*

Contraindications and Cautions

Do not exceed 3 mL per day. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

8–20 mL/week
Do not exceed 3 mL per day.

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

traditional use (Ayurveda)
† clinical trial (controlled)
^ traditional use (traditional Chinese medicine)
* traditional use (Western herbal medicine)

Barberry 1:2

Botanical Name:	*Berberis vulgaris*
Plant parts used:	Bark
Ethanol content:	45%

Berberis vulgaris

Major Actions

Cholagogue, bitter tonic.

Major Indications

- Support healthy gallbladder function.*
- Indigestion, sluggish liver.*
- As a tonic when run down.*
- Topically to relieve skin eruptions and inflammations, including eczema.*
- Topically as a gargle to relieve mouth ulcers.*
- Topically as an eye tonic.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and in neonatal jaundice. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

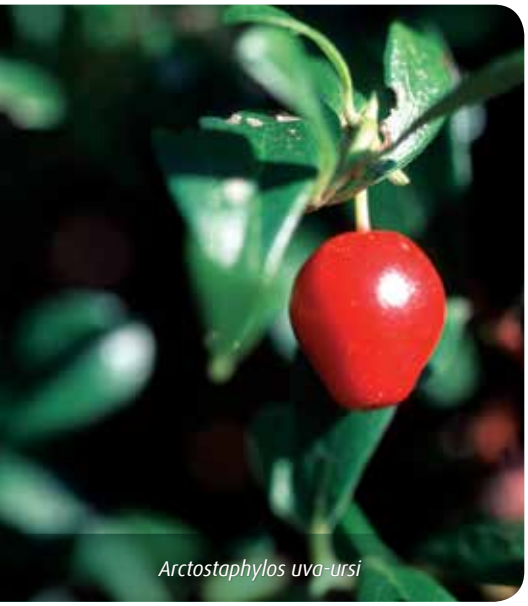
20–40 mL/week

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle or eye bath, use 5 mL in 70–80 mL of saline.

Bearberry 1:2

Botanical Name:	*Arctostaphylos uva-ursi*
Plant parts used:	Leaf
Ethanol content:	45%



Arctostaphylos uva-ursi

Major Actions

Urinary antiseptic, astringent.

Major Indications

- Relief of the pain and burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract.*
- Support for healthy bladder tone.*
- Support for kidney and bladder stones.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and children under 12 years of age. Not suitable for prolonged use. Use cautiously in highly inflamed or ulcerated conditions of the gastrointestinal tract. Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

30–60 mL/week

* traditional use (Western herbal medicine)

Beth Root 1:2

Botanical Name:	*Trillium erectum*
Plant parts used:	Root
Ethanol content:	60%

Major Actions

Astringent, haemostatic, expectorant (mild).

Major Indications

- Relief of heavy menstruation.*
- Topically for relief of leucorrhoea.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

Refer to page 97 for how to make topical preparations.
To make a douche, use 5 mL in 70–80 mL of saline.

Bilberry 1:1

Botanical Name:	*Vaccinium myrtillus*
Plant parts used:	Fruit
Ethanol content:	23%

Major Actions

Astringent.

Major Indications

- Relief of diarrhoea.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

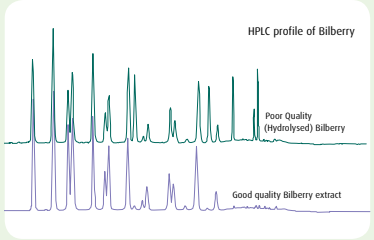
Dosage and Administration

20–40 mL/week

Vaccinium myrtillus

Bilberry Quality Issues

In 2003 MediHerb received samples of *Vaccinium myrtillus* or bilberry fruit extracts which differed in behaviour to that normally received. The standard method of determining the anthocyanin content at this time was a spectrophotometric assay. Using this method, anthocyanin levels of two extracts were found to be 25% as claimed by the manufacturers. When high-performance liquid chromatography (HPLC) was used, however, one extract was found to contain 9% anthocyanins probably not derived from *V. myrtillus* but from another species as well as an adulterant chemical. This adulterant was subsequently identified, using HPLC, mass spectroscopy, and nuclear magnetic resonance, as amaranth (3-hydroxy-4-[(4-sulfo-1-naphthalenyl)azo]-2,7-naphthalenedisulfonic acid trisodium salts) a synthetic dark red dye. It was evident that when deliberate adulteration occurs in an extract, a spectrophotometric assay is inadequate to accurately determine the levels of compounds such as anthocyanins. This has led to a change in the standard method of analysis for bilberry extracts to a more sophisticated method of analysis, (HPLC with photodiode array detection) to counter this form of adulteration. The results of this discovery by the MediHerb team were published (*Journal of Agricultural Chemistry and Food Science* 2006; **54**: 7378-7382) and led to regulators around the world to review accepted test methods for Bilberry. The *British Pharmacopoiea* also changed the method of analysis for Bilberry as a result of this discovery.



* traditional use (Western herbal medicine)

Black Cohosh 1:2

Quantified Activity

Botanical Name:	*Actaea racemosa*
Plant parts used:	Root
Ethanol content:	60%
Actives:	15 mg/mL of triterpene glycosides as 27-deoxyactein

Major Actions

Female tonic, antispasmodic, anti-inflammatory.

Major Indications

- Relief of menstrual, arthritic, muscular and nerve-related pain.*
- To support normal menstruation and female reproductive function.*
- Relief of menopausal symptoms.†

Contraindications and Cautions

In very rare cases, black cohosh has been associated with liver failure – monitor for signs and symptoms. Advise patients: If you are experiencing yellowing of the skin or whites of the eyes, dark urine, nausea, vomiting, unusual tiredness, weakness, stomach or abdominal pain, and/or loss of appetite, you should stop using this product and see your doctor.

Contraindicated in lactation, and in patients with pre-existing liver disease. Caution in patients with oestrogen-sensitive malignant tumours, especially when using doses at the higher end of the range. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Black Walnut Hulls 1:10

Botanical Name:	*Juglans nigra*
Plant parts used:	Hulls
Ethanol content:	60%

Major Actions

Anthelmintic.

Major Indications

- To support the elimination of parasitic worms from the gut.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

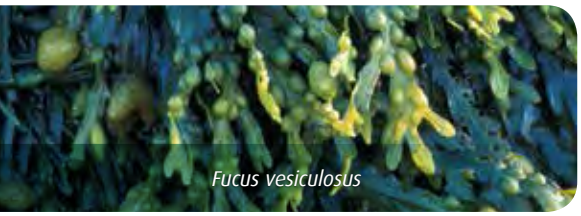
Dosage and Administration

10–40 mL/week

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)

Bladderwrack 1:1

Botanical Name:	*Fucus vesiculosus*
Plant parts used:	Whole plant
Ethanol content:	23%


Fucus vesiculosus

Major Actions

Thyroid tonic.

Major Indications

- Supports healthy thyroid function.*

Contraindications and Cautions

Contraindicated in hyperthyroidism and related cardiac problems. Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Blue Cohosh 1:2

Botanical Name:	*Caulophyllum thalictroides*
Plant parts used:	Root
Ethanol content:	70%

Major Actions

Uterine tonic, antispasmodic.

Major Indications

- Relief of dysmenorrhoea.*
- To support normal menstruation.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and women trying to conceive. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Blue Flag 1:2

Botanical Name:	*Iris versicolor*
Plant parts used:	Root
Ethanol content:	60%

Major Actions

Depurative, cholagogue, lymphatic.

Major Indications

- Skin complaints, sluggish liver, poor gallbladder function.*
- Relief of indigestion, headache or constipation, particularly when related to sluggish liver.*
- Relief of enlarged lymph nodes.*

Contraindications and Cautions

Monitor sensitive individuals and when prescribing at or exceeding the high end of the recommended therapeutic dosage (adverse reactions including gastrointestinal upset have been recorded). Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)

Buchu 1:2

Botanical Name:	*Agathosma betulina*
Plant parts used:	Leaf
Ethanol content:	60%

Major Actions

Urinary antiseptic, diuretic (mild).

Major Indications

- Relief of the pain and burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract.*
- Support for kidney and bladder stones.*

Contraindications and Cautions

Caution is advised in lactation. May occasionally cause gastrointestinal irritation if taken on an empty stomach. Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Bugleweed 1:2

Botanical Name:	*Lycopus* spp.
Plant parts used:	Herb
Ethanol content:	23%

Lycopus spp.

Major Actions

Thyroid tonic.

Major Indications

- Supports healthy thyroid function.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and in patients with an underactive thyroid. Caution is advised in women wishing to conceive. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Bupleurum 1:2

Botanical Name:	*Bupleurum falcatum*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Anti-inflammatory, liver tonic, diaphoretic, antitussive.

Major Indications

- Supports healthy gastrointestinal and liver function.^
- Relief of the symptoms of colds and influenza.^

Contraindications and Cautions

May have a sedative effect in some patients, particularly in large doses. Keep to a minimum in patients with pre-existing cholestasis. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–60 mL/week

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Burdock 1:2

Botanical Name:	*Arctium lappa*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Depurative, diuretic (mild).

Major Indications

- Skin complaints, especially eczema.*
- Supports normal detoxification processes for healthy connective tissue, muscles and joints, including relief of gout.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–25 mL/week

Burdock is notable for its potential for exacerbation, it should be used carefully, well combined with, or preceded by, more eliminatory herbs.

Butcher's Broom 1:2

Botanical Name:	*Ruscus aculeatus*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Venotonic, anti-inflammatory, diuretic.

Major Indications

- Conditions requiring improved circulation.*
- Internally and topically for haemorrhoids.*

Contraindications and Cautions

Keep to a minimum in patients with pre-existing cholestasis. Do not apply to broken or ulcerated skin. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

Refer to page 97 for how to make topical preparations.
To make a cream, use 5 mL in 45 grams of vitamin E cream.

Butternut 1:2

Botanical Name:	*Juglans cinerea*
Plant parts used:	Bark
Ethanol content:	23%

Major Actions

Laxative, cholagogue, depurative.

Major Indications

- Relief of constipation.*
- Sluggish liver, indigestion and associated skin conditions.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

* traditional use (Western herbal medicine)

Calendula 1:2

Botanical Name:	*Calendula officinalis*
Plant parts used:	Flower
Ethanol content:	90%

Calendula 1:2 (low alcohol)

Botanical Name:	*Calendula officinalis*
Plant parts used:	Flower
Ethanol content:	23%

Calendula officinalis

Major Actions

Vulnerary, anti-inflammatory, lymphatic, antiseptic, styptic.

Major Indications

- Relief of enlarged lymph nodes.*
- To help relieve inflammatory conditions of the digestive system.*
- Internally and topically to support healthy circulation, especially of the legs and to relieve haemorrhoids.*
- Internally and topically for acne.*
- Topically to support healthy wound healing.*
- Topically for skin inflammations, including nappy rash and eczema.*
- Topically for inflammation of the mouth and throat mucosa, including mouth ulcers.*
- Topically for sprains and bruises.*
- Topically as an eye bath to support healthy conjunctiva.*
- Topically for infections of the skin, particularly fungal.*

Contraindications and Cautions

Contraindicated in known allergy to Calendula. Avoid topical application of Calendula in those with known sensitivity to other members of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

Although texts such as the *British Herbal Pharmacopoeia* 1983 list a range of actions and applications (including for example, lymphatic) for preparations including infusion, low alcohol (40%) liquid extract and high alcohol (90%) tincture, high alcohol extract may be a better choice for topical anti-inflammatory and antiseptic actions – except when using as an eye bath, where use of low alcohol extract is preferred.

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL of 23% ethanol 1:2 liquid extract in 45 grams of vitamin E cream. (High-alcohol extract (90% ethanol 1:2) can be used to make the cream, however, using the low-alcohol extract reduces the potential irritant effects of the alcohol.)
- To make an eye bath, use 5 mL of 23% ethanol 1:2 liquid extract in 70–80 mL of saline.

* traditional use (Western herbal medicine)

Californian Poppy 1:2

Botanical Name:	*Eschscholzia californica*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Sedative (mild), analgesic.

Major Indications

- Relief of sleeplessness.*
- Relief of mild neuralgia.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Cascara 1:2

Botanical Name:	*Frangula purshiana*
Plant parts used:	Bark
Ethanol content:	23%

Major Actions

Laxative.

Major Indications

- Relief of constipation.*
- Relief of indigestion or headache caused by constipation.*
- Conditions in which soft faeces is desired, such as for relief of haemorrhoids.*

Contraindications and Cautions

Not for prolonged use. Do not use in intestinal upsets, including irritation and inflammations. Not recommended for children under 12 years. Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Laxative herbs*).

Dosage and Administration

20–55 mL/week

* traditional use (Western herbal medicine)

Cat's Claw 1:2

Quantified Activity

Botanical Name:	*Uncaria tomentosa*
Plant parts used:	Inner bark
Ethanol content:	60%
Actives:	1.5 mg/mL of pentacyclic oxindole alkaloids

Major Actions

Tonic, anti-inflammatory, immune enhancing.

Major Indications

- May assist with relief of inflammatory symptoms.[Δ]
- To support healthy immune function.[†]

Contraindications and Cautions

Contraindicated in pregnancy and in women wishing to conceive. Caution is advised in lactation. Diarrhoea (temporary) has been reported. Advise patients: If diarrhoea persists for more than 48 hours, consult your doctor.

Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

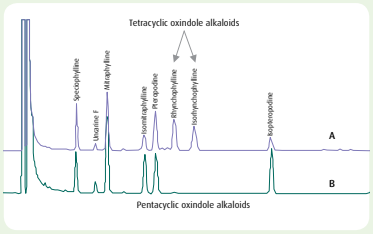
Dosage and Administration

30–75 mL/week

Uncaria tomentosa

Cat's Claw Quality Issues

Cat's Claw (*Uncaria tomentosa*) is a herb traditionally used by the Asháninka Indians of Peru. The tribe recognised two different types of this plant (one was used therapeutically and the other was never used). This difference has been verified phytochemically and two chemotypes have been identified: the preferred chemotype contains only pentacyclic oxindole alkaloids (POAs) speciophylline, mitraphylline, pteropodine, isomitraphylline and isopteropodine; the other chemotype, which was never used, contains the tetracyclic oxindole alkaloids (TOAs) rhynchophylline and isorhynchophylline in addition to the POAs. The preference for the POA chemotype of Cat's Claw has been validated by scientific research. MediHerb tests each batch of Cat's Claw to determine that only the preferred chemotype is used to manufacture our Cat's Claw products. The upper trace of herb, labelled A, shown below was rejected by our quality assurance testing as it contained the TOAs. The bottom trace of herb, labelled B, contains very low levels of TOA and was accepted.



[Δ] traditional use (traditional Peruvian medicine)
[†] clinical study/trial (controlled)

Cayenne 1:3

Botanical Name:	*Capsicum* spp.
Plant parts used:	Fruit
Ethanol content:	60%

Capsicum spp.

Major Actions

Pungent, circulatory stimulant, carminative, diaphoretic, rubifacient.

Major Indications

- Conditions requiring improved peripheral circulation.*
- Indigestion, flatulence, colic.*
- Part of a supportive regimen for fatigue.*
- To support healthy immune function via fever management and provide relief of congestion.*
- Add to formulations to promote the activity of the other herbs.*
- Topically as a gargle to relieve sore or inflamed throat.*
- Topically to relieve neuralgia, joint pain and muscle ache including in the lower back.*

Contraindications and Cautions

Caution is advised in peptic ulcer and gastrointestinal reflux. Do not apply to broken skin. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

0.5–3 mL/week

Caution: The daily dose of this tincture is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Refer to page 97 for how to make topical preparations.

- To make a gargle, use 1 mL in 200 mL of saline.
- To make a cream, use 2 mL in 48 grams of vitamin E cream.

Celery Seed 1:2

Quantified Activity

Botanical Name:	*Apium graveolens*
Plant parts used:	Fruit
Ethanol content:	60%
Actives:	10 mg/mL of phthalides as butylphthalide and sedanenolide

Major Actions

Diuretic, anti-inflammatory.

Major Indications

- Supports normal detoxification processes for healthy connective tissue, muscles and joints, including relief of arthritis and gout.*

Contraindications and Cautions

Caution is advised in lactation and kidney disorders. Allergic reactions are known to have occurred. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

* traditional use (Western herbal medicine)

Chamomile 1:2

Botanical Name:	*Matricaria chamomilla*
Plant parts used:	Flower
Ethanol content:	60%

Major Actions

Carminative, antispasmodic, sedative (mild), anti-inflammatory.

Major Indications

- Indigestion characterised by flatulence or nervousness; colic.*
- Relief of dysmenorrhoea.*
- Restlessness or irritability in children, teething problems.*
- Sleeplessness.*
- Topically for relief of eczema (preparation contained known amounts of alpha-bisabolol).†
- Topically to support healthy wound healing.†
- Topically for inflammations and irritations of the skin and mucosa, including for example, haemorrhoids.*
- Topically for relief of mouth ulcers.‡
- Topically as a mouthwash for relief of gum inflammation.†
- Topically for the care of sensitive skin of infants and young children, particularly extracts high in alpha-bisabolol.*
- Topically as a eye bath to support healthy conjunctiva.*

Contraindications and Cautions

Avoid in cases of known allergy to chamomile, and caution is advised in those with known sensitivity to plants in the Compositae family. Contact dermatitis has been reported, although is rare. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Polyphenol-containing or Flavonoid-containing herbs*).

Dosage and Administration

20–40 mL/week

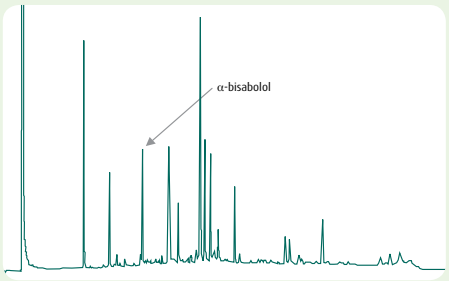
Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle, mouthwash or eye bath, use 5 mL in 70–80 mL of saline.

Matricaria chamomilla

Chamomile Quality Issues

German or true Chamomile (*Matricaria chamomilla*) contains a range of essential oil components and high levels of flavonoids. A wide variation in the levels of these constituents is found between different chemical races or varieties of Chamomile. Some varieties do not contain any α-bisabolol which is an important active component. MediHerb has selected a variety of Chamomile which is very high in α-bisabolol for use in our Chamomile liquid extracts. The level of α-bisabolol is determined by Gas Chromatography (GC) in all batches of raw material and finished product (Chamomile High Grade 1:2) manufactured by MediHerb, thus assuring safety and efficacy. Roman Chamomile (*Chamaemelum nobile = Anthemis nobilis*) can be adulterant in, or substituted for, true Chamomile and should be avoided due to allergic reactions.



* traditional use (Western herbal medicine)
† clinical study/trial (controlled)
‡ clinical study/trial (uncontrolled)

Chaste Tree 1:2

Botanical Name:	*Vitex agnus-castus*
Plant parts used:	Fruit
Ethanol content:	60%

Major Actions

Hormonal modulator, uterine tonic, galactagogue.

Major Indications

- Relief of premenstrual syndrome.*
- Relief of symptoms caused by irregularities of the menstrual cycle.*

Contraindications and Cautions

Best not taken in conjunction with progesterone drugs and hormone replacement therapy. May aggravate pure spasmodic dysmenorrhoea not associated with premenstrual syndrome. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

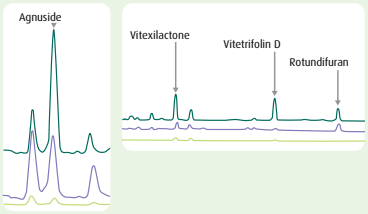
6–30 mL/week

Vitex agnus-castus

Chaste Tree Quality Issues

Chaste Tree (*Vitex agnus-castus*) contains three important classes of phytochemicals: iridoid glycosides (such as agnuside and aucubin), flavonoids (such as casticin) and diterpenoids (such as vitexilactone, rotundifuran and vitetrifolin D).

It is believed that the diterpenoids are the more important of these constituents and therefore MediHerb has developed analytical methods for the determination of these constituents and manufactures extracts containing high levels of these diterpenoids, but not at the expense of other vital components.



Top Line: MediHerb Chaste Tree Tablets
Second Line: Product X
Third Line: Product Y

Chen Pi 1:2

Botanical Name:	*Citrus reticulata*
Plant parts used:	Fruit peel
Ethanol content:	45%

Major Actions

Carminative, stomachic, expectorant.

Major Indications

- Digestive discomfort including indigestion, bloating, flatulence and nausea.^
- Relief of congested cough.^

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

* traditional use (Western herbal medicine)

Cinnamon Quills 1:2

Botanical Name:	*Cinnamomum cassia*
Plant parts used:	Bark
Ethanol content:	70%


Cinnamomum cassia

Major Actions

Carminative, antispasmodic, warming (mild circulatory stimulant), antimicrobial.

Major Indications

- Indigestion, nausea, flatulence, colic, relief of diarrhoea.*
- Common cold.*
- Supports healthy circulation.^

Contraindications and Cautions

Contraindicated in allergy to cinnamon or Peruvian balsam. Caution in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Sedimentation naturally occurs in liquid extracts and does not affect quality.

Clivers 1:2

Botanical Name:	*Galium aparine*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Diuretic, depurative.

Major Indications

- Skin complaints.*
- Relief of the burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract.*
- Relief of enlarged lymph nodes.*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

Codonopsis 1:2

Botanical Name:	*Codonopsis pilosula*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Tonic.

Major Indications

- Fatigue, particularly with pallor; poor appetite.^
- Used as a less expensive (and milder) substitute for Korean ginseng in formulations.^

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

^ traditional use (traditional Chinese medicine)
* traditional use (Western herbal medicine)

Coleus 1:1

Quantified Activity

Botanical Name:	*Coleus forskohlii*
Plant parts used:	Root
Ethanol content:	60%
Actives:	2.5 mg/mL of forskolin


Coleus forskohlii

Major Actions

Depurative, diuretic.

Major Indications

- Support for a healthy heart.‡

Contraindications and Cautions

Contraindicated in hypotension. Caution in patients with peptic ulceration and reflux. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–90 mL/week

Corn Silk 1:1

Botanical Name:	*Zea mays*
Plant parts used:	Style and stigma
Ethanol content:	23%

Major Actions

Demulcent, diuretic (mild), antilithic.

Major Indications

- Relief of the pain and burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract; bedwetting.*
- Support for kidney and bladder stones.*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Corydalis 1:2

Botanical Name:	*Corydalis ambigua*
Plant parts used:	Tuber
Ethanol content:	45%

Major Actions

Analgesic, circulatory stimulant.

Major Indications

- Part of a regimen to support pain relief.^
- Dysmenorrhoea.^
- Swellings, bruises.^

Contraindications and Cautions

Contraindicated in pregnancy. Caution is advised in lactation (on the basis that it contains alkaloids). Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–60 mL/week

^ traditional use (traditional Chinese medicine)
‡ clinical study (uncontrolled)
* traditional use (Western herbal medicine)

Couch Grass 1:1

Botanical Name:	*Elymus repens*
Plant parts used:	Rhizome
Ethanol content:	23%

Major Actions

Soothing diuretic, urinary demulcent.

Major Indications

- Relief of the pain and burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract; bedwetting.*
- Support for kidney and bladder stones.*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Cramp Bark 1:2

Botanical Name:	*Viburnum opulus*
Plant parts used:	Bark
Ethanol content:	30%

Major Actions

Antispasmodic, sedative (mild).

Major Indications

- Relief of dysmenorrhoea, ovarian pain and leg cramps.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

5–30 mL/week

^ traditional use (traditional Chinese medicine)
* traditional use (Western herbal medicine)

Crataeva 1:2

Botanical Name:	*Crataeva nurvala*
Plant parts used:	Bark
Ethanol content:	23%

Major Actions

Antilithic, bladder tonic, anti-inflammatory.

Major Indications

- Support for kidney and bladder stones.#
- Support for healthy bladder tone.‡
- Relief of inflammations of the urinary tract.‡

Contraindications and Cautions

Caution in pregnancy and lactation. Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–100 mL/week

Damiana 1:2

Botanical Name:	*Turnera diffusa*
Plant parts used:	Leaf
Ethanol content:	60%

Turnera diffusa

Major Actions

Nervine tonic, general tonic, thymoleptic.

Major Indications

- To support normal sexual function.*
- Indigestion.*
- Relief of anxiety, low mood.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Dan Shen 1:2

Botanical Name:	*Salvia miltiorrhiza*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Circulatory stimulant, sedative.

Major Indications

- Supports healthy blood flow and a healthy heart.^
- Relief of anxiety, sleeplessness.^

Contraindications and Cautions

Contraindicated in pregnancy. Caution advised in menorrhagia. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

traditional use (Ayurveda)
‡ clinical study (uncontrolled)
* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Dandelion Leaves 1:1

Botanical Name:	*Taraxacum officinale*
Plant parts used:	Leaf
Ethanol content:	23%


Taraxacum officinale

Major Actions

Diuretic, bitter tonic, choleretic.

Major Indications

- Support healthy elimination via the kidneys.*
- Indigestion, sluggish liver, poor gallbladder function.*

Contraindications and Cautions

Contraindicated in known allergy to dandelion. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–80 mL/week

Dandelion Root 1:2

Botanical Name:	*Taraxacum officinale*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Bitter tonic, choleretic, cholagogue, laxative (mild).

Major Indications

- Indigestion, sluggish liver.*
- Support healthy gallbladder function.*
- Relief of constipation, skin complaints.*
- Supports normal detoxification processes for healthy connective tissue, muscles and joints.*

Contraindications and Cautions

Contraindicated in known allergy to dandelion. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Devil's Claw 1:2

Botanical Name:	*Harpagophytum* spp.
Plant parts used:	Root
Ethanol content:	23%
Actives:	High hapargoside level

Major Actions

Anti-inflammatory, analgesic, bitter tonic.

Major Indications

- Supports healthy connective tissue, muscles and joints, including relief of arthritic conditions, and muscular aches and pains.*
- Loss of appetite, indigestion (lower doses).*

Contraindications and Cautions

Caution in peptic ulcer. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–80 mL/week for anti-inflammatory and analgesic applications

20 mL/week for gastrointestinal applications

* traditional use (Western herbal medicine)

Dong Quai 1:2

Botanical Name:	*Angelica sinensis*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Female tonic, laxative (mild), blood building, analgesic.

Major Indications

- Relief of dysmenorrhoea.^
- Supports normal menstruation.^
- Fatigue with pallor.^
- Relief of constipation.^
- Relief of arthritic pain.^

Contraindications and Cautions

Contraindicated in the first trimester of pregnancy, especially in higher doses. Exercise caution in severe menorrhagia. Caution in patients with diarrhoea. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Echinacea Angustifolia Root 1:2

Quantified Activity

Botanical Name:	*Echinacea angustifolia*
Plant parts used:	Root
Ethanol content:	60%
Actives:	1.6 mg/mL of alkylamides

Echinacea angustifolia

Major Actions

Depurative, lymphatic, immune stimulating, vulnerary, antiseptic.

Major Indications

- Relief of upper respiratory tract infections, including tonsillitis, pharyngitis, common cold, influenza.*
- Relief of bronchitis.*
- To support the body's resistance to infections of all kinds.*
- Skin complaints, boils.*
- Internally and topically to support healthy wound healing.*
- Internally and topically for mouth ulcers.*
- Topically as a gargle to relieve tonsillitis.*
- Topically as a mouthwash to support healthy gums.*
- Combines with myrrh for topical applications.*

Contraindications and Cautions

Contraindicated in patients taking immunosuppressant medication (such as transplant patients). Short-term therapy only is suggested in this instance. Caution in those with known allergy to members of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Good quality liquid extracts, those containing substantial levels of alkylamides, will impart a persistent tingling and slight numbing sensation in the mouth after oral intake and when gargling.

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Echinacea Premium Blend 1:2

Quantified Activity

Botanical Names & Plant Part:	60% *Echinacea purpurea* root 1:2 and 40% *Echinacea angustifolia* root 1:2
Ethanol content:	60%
Actives:	1.5 mg/mL of alkylamides

Major Actions

Depurative, lymphatic, immune stimulating, vulnerary, antiseptic.

Major Indications

- Relief of upper respiratory tract infections, including tonsillitis, pharyngitis, common cold, influenza.*
- Relief of bronchitis.*
- To support the body's resistance to infections of all kinds.*
- Skin complaints, boils.*
- Internally and topically to support healthy wound healing.*
- Internally and topically for mouth ulcers.*
- Topically as a gargle to relieve tonsillitis and throat conditions.*
- Topically as a mouthwash to support healthy gums.*

Contraindications and Cautions

Contraindicated in patients taking immunosuppressant medication (such as transplant patients). Short-term therapy only is suggested in this instance. Caution in those with known allergy to members of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Good quality liquid extracts, those containing substantial levels of alkylamides, will impart a persistent tingling and slight numbing sensation in the mouth after oral intake and when gargling.

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

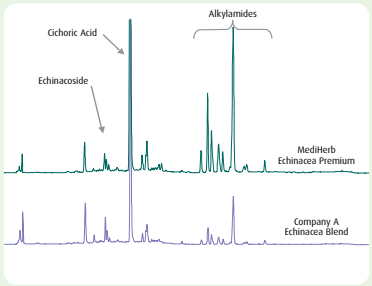
* traditional use (Western herbal medicine)


Echinacea angustifolia

Echinacea Quality Issues

MediHerb has developed specialised knowledge in the manufacture and testing of Echinacea products over the past 20 years. This includes a PhD study, extensive analytical method development, development of harvesting, drying and storage protocols to maximise retention of actives and a successful clinical trial.

MediHerb Echinacea products are market leaders based on the most up-to-date science and the best of traditional wisdom.



Competitor Product Testing

The graph and table below compares MediHerb Echinacea Premium liquid extract against another professional product.

Analytical Results for a blend 60% *Echinacea purpurea* and 40% *Echinacea angustifolia*:

Product	Brand A	MediHerb
Total alkylamides	0.699 mg/mL	2.26 mg/mL

Echinacea Purpurea Root 1:2

Quantified Activity

Botanical Name:	*Echinacea purpurea*
Plant parts used:	Root
Ethanol content:	60%
Actives:	1.0 mg/mL of alkylamides

Major Actions

Depurative, lymphatic, immune stimulating, vulnerary, antiseptic.

Major Indications

- Relief of upper respiratory tract infections and catarrh, including tonsillitis, common cold.*
- Relief of cough.ψ
- To support the body's resistance to infections generally.*
- Boils.*
- Topically to support healthy wound healing.*
- Topically as a gargle to relieve throat conditions.*
- Topically as a mouthwash to support healthy gums.*

Contraindications and Cautions

Contraindicated in patients taking immunosuppressant medication (such as transplant patients). Short-term therapy only is suggested in this instance. Caution in those with known allergy to members of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Good quality liquid extracts, those containing substantial levels of alkylamides, will impart a persistent tingling and slight numbing sensation in the mouth after oral intake and when gargling.

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)
ψ traditional use (Native Americans)

Echinacea Purpurea Glycetract 1:3

Botanical Name:	*Echinacea purpurea*
Plant parts used:	Root
Ethanol content:	less than 5%

Echinacea purpurea

Major Actions

Depurative, lymphatic, immune stimulating, vulnerary, antiseptic.

Major Indications

- Relief of upper respiratory tract infections and catarrh, including tonsillitis, common cold.*
- Relief of cough.ᵛ
- To support the body's resistance to infections generally.*
- Boils.*
- Topically to support healthy wound healing.*
- Topically as a gargle to relieve throat conditions.*
- Topically as a mouthwash to support healthy gums.*

Contraindications and Cautions

Contraindicated in patients taking immunosuppressant medication (such as transplant patients). Short-term therapy only is suggested in this instance. Caution in those with known allergy to members of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

As the glycetract does not contain alcohol it may be suitable for immune support for those who need to restrict their intake of alcohol. As the glycetract tastes sweet, it may be useful alone or in liquid formulations for children – at a suitable dosage (*see page 19*).

Refer to page 97 for how to make topical preparations.

To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)
ᵛ traditional use (Native Americans)

Echinacea Regular Blend 1:2 & F/P

Botanical Names & Plant Part:	40% *Echinacea angustifolia* root 1:2 and 60% *Echinacea purpurea* fresh whole plant 1:1
Ethanol content:	57%

Major Actions

Depurative, lymphatic, immune stimulating, vulnerary, antiseptic.

Major Indications

- Support for relief of upper respiratory tract infections and catarrh, including tonsillitis and common cold.*
- Support the body's resistance to infections of all kinds.*
- Support for relief of skin complaints, boils, minor wounds.*
- Topically to provide support for healthy gums and relief of tonsillitis and mouth ulcers.*

Contraindications and Cautions

Contraindicated in patients taking immunosuppressant medication (such as transplant patients). Short-term therapy only is suggested in this instance. Caution in those with known allergy to members of the Compositae family. Allergic reactions may occur in susceptible patients, including contact dermatitis, particularly as aerial parts may contain pollen. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Best results require doses from the higher end of the dosage range.

Refer to page 97 for how to make topical preparations.

- To make a cream, use 5 mL in 45 grams of vitamin E cream.
- To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

Elder Flowers 1:2

Botanical Name:	*Sambucus nigra*
Plant parts used:	Flower
Ethanol content:	23%

Major Actions

Diaphoretic, anticatarrhal.

Major Indications

- Relief of fever associated with common cold and influenza.*
- Relief of bronchitis, nasal catarrh, sinusitis, sore throat.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

* traditional use (Western herbal medicine)

Elecampane 1:2

Botanical Name:	*Inula helenium*
Plant parts used:	Root
Ethanol content:	60%


Inula helenium

Major Actions

Expectorant, diaphoretic, antispasmodic.

Major Indications

- Relief of bronchitis and cough.*

Contraindications and Cautions

Contraindicated in lactation, and in those allergic to plants in the Compositae family and other plants containing sesquiterpene lactones. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Euphorbia 1:2

Botanical Name:	*Euphorbia hirta*
Plant parts used:	Herb
Ethanol content:	60%

Major Actions

Expectorant, antispasmodic, bronchodilator (mild).

Major Indications

- Relief of symptoms of bronchitis, upper respiratory catarrh and spasm.*
- Relief of diarrhoea.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

5–12 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Eyebright 1:2

Botanical Name:	*Euphrasia officinalis*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Anticatarrhal, astringent, mucous membrane tonic, anti-inflammatory (topically).

Major Indications

- Relief of upper respiratory catarrh, including common cold, sinusitis.*
- Internally and topically to support healthy conjunctiva.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Refer to page 97 for how to make topical preparations.
To make an eye bath, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)

False Unicorn 1:2

Botanical Name:	*Chamaelirium luteum*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Uterine tonic, ovarian tonic.

Major Indications

- Relief of dysmenorrhoea and ovarian pain.*
- To support normal menstruation and female reproductive function.*
- Relief of menopausal symptoms.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Fennel 1:2

Botanical Name:	*Foeniculum vulgare*
Plant parts used:	Fruit
Ethanol content:	60%

Major Actions

Carminative, antispasmodic, expectorant, galactagogue, antimicrobial.

Major Indications

- Indigestion, lack of appetite, flatulence, colic (particularly in infants), cough.*
- Support normal lactation.*
- Add to formulations as a flavouring.*

Contraindications and Cautions

Caution in pregnancy, and in those with known sensitivity to plants of the Umbelliferae. Prolonged intake should be avoided in children (potential oestrogenic effects). Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Fenugreek 1:2

Botanical Name:	*Trigonella foenum-graecum*
Plant parts used:	Seed
Ethanol content:	45%

Trigonella foenum-graecum

Major Actions

Tonic.

Major Indications

- Indigestion, loss of appetite.*
- Support during convalescence or fatigue.*

Contraindications and Cautions

Caution in pregnancy. Avoid where known spice allergies exist. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Hypoglycaemic herbs*).

Dosage and Administration

15–30 mL/week

* traditional use (Western herbal medicine)

Feverfew 1:5

Quantified Activity

Botanical Name:	*Tanacetum parthenium*
Plant parts used:	Leaf
Ethanol content:	60%
Actives:	0.3 mg/mL of parthenolide


Tanacetum parthenium

Major Actions

Anti-inflammatory, bitter tonic.

Major Indications

- Temporary relief of migraine.†
- Tonic and for relief of anxiety.*

Contraindications and Cautions

Contraindicated in known sensitivity to feverfew, parthenolide or other members of the Compositae family. Doses during pregnancy should be kept to a minimum (no more than1.5 mL/day). Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

7–14 mL/week

Flavouring Mixture

Plants used:	54% Licorice (*Glycyrrhiza glabra*) 1:1 14% Fennel (*Foeniculum vulgare*) 1:2 30% Stevia (*Stevia rebaudiana*) 1:2 0.5% essential oil of orange 0.5% essential oil of lemon
Ethanol content:	27%

Major Indications

- Add to formulations as a flavouring.

Dosage and Administration

5–20 mL/week

Fringe Tree 1:2

Botanical Name:	*Chionanthus virginica*
Plant parts used:	Stem bark
Ethanol content:	45%


Chionanthus virginica

Major Actions

Cholagogue, liver tonic.

Major Indications

- Sluggish liver.*
- Support healthy gallbladder function.*

Contraindications and Cautions

Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

† clinical study (controlled)
* traditional use (Western herbal medicine)

Garlic 1:1 (fresh weight)

Botanical Name:	*Allium sativum*
Plant parts used:	Bulb
Ethanol content:	45%


Allium sativum

Major Actions

Expectorant, mucolytic.

Major Indications

- Relief of respiratory catarrh, bronchitis, common cold, influenza, sinusitis.*

Contraindications and Cautions

Contraindicated in known sensitivity. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–80 mL/week

Gentian 1:2

Botanical Name:	*Gentiana lutea*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Bitter tonic, gastric stimulant.

Major Indications

- Loss of appetite, indigestion, flatulence.*
- Facilitate improved digestion during convalescence or fatigue, and after feverish conditions.*
- Relief of diarrhoea.*

Contraindications and Cautions

Caution in peptic ulcer and hyperacidity. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

5–15 mL/week

* traditional use (Western herbal medicine)

Ginger 1:2

Botanical Name:	*Zingiber officinale*
Plant parts used:	Rhizome
Ethanol content:	90%

Zingiber officinale

Major Actions

Carminative, diaphoretic, antispasmodic, circulatory stimulant, expectorant.

Major Indications

- Indigestion, flatulence, colic.*
- Lack of appetite, relief of bronchitis.*
- Relief of nausea.*
- Relief of dysmenorrhoea.*
- Conditions requiring improved peripheral circulation.*
- To support feverish conditions.*
- Add to formulations to prevent griping.*
- Add to formulations as a flavouring agent.*
- Add to formulations to promote the activity of the other herbs.*

Contraindications and Cautions

Caution in peptic ulcer, and cease use if reflux occurs. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

5–15 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Ginkgo Biloba 2:1

Standardised

Botanical Name:	*Ginkgo biloba*
Plant parts used:	Leaf
Ethanol content:	50%
Actives:	9.6 mg/mL of ginkgo flavone glycosides

Major Actions

Circulatory stimulant, tissue perfusion enhancing, cognition enhancing, antioxidant.

Indications

- Support for healthy blood flow to the brain and periphery.†
- Support for healthy vision.†
- Support for improved concentration, memory, cognitive performance.†
- Support for healthy peripheral nerve function.†
- Support healthy tissue healing in minor wounds.†
- Relief of dysmenorrhoea.†
- Antioxidant protection.†

Contraindications and Cautions

Contraindicated in known sensitivity to Ginkgo preparations. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

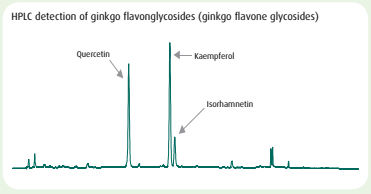
21–28 mL/week

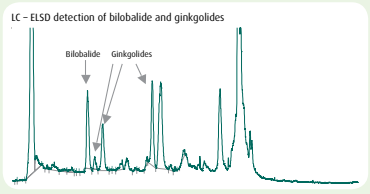
* traditional use (Western herbal medicine)
† clinical trial (controlled)

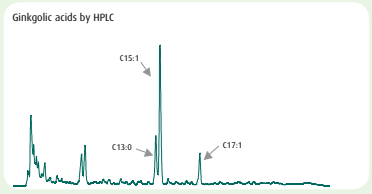

Ginkgo biloba

Ginkgo Quality Issues

The ginkgo flavonglycosides (ginkgo flavone glycosides) of *Ginkgo biloba*, comprising quercetin, kaempferol and isorhamnetin are the phytochemicals most often referred to as indicators of quality and efficacy. However, these compounds are mainly marker compounds which are used to identify the extract. The therapeutically active ingredients are believed to include the ginkgolides and bilobalide, which cannot be tested by normal HPLC methods. They require more sophisticated methods of detection such as Refractive Index (RI), Evaporative Light Scattering Detectors (ELSDs) or Mass Spectrometry (MS). MediHerb uses ELSD detection to accurately quantify the levels of these therapeutically important phytochemicals. The other important group of phytochemicals from Ginkgo are the ginkgolic acids (C13:0, C15:1 and C17:1 on the third figure). These compounds have been identified as contact allergens. The maximum level of ginkgolic acids in *Ginkgo biloba* extracts has been set by the European authorities at 5 ppm. Many poor quality extracts contain levels of ginkgolic acids many orders of magnitude higher than this recommended maximum.







Globe Artichoke 1:2

Botanical Name:	*Cynara scolymus*
Plant parts used:	Leaf
Ethanol content:	60%

Major Actions

Liver tonic, bitter tonic, cholagogue.

Major Indications

- Sluggish liver, loss of appetite.*
- Indigestion.*

Contraindications and Cautions

Contraindicated in known allergy to globe artichoke or to other plants of the Compositae family. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–55 mL/week

* traditional use (Western herbal medicine)

Goat's Rue 1:2

Botanical Name:	*Galega officinalis*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Galactagogue, diuretic, diaphoretic.

Major Indications

- To support normal lactation.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Hypoglycaemic herbs*).

Dosage and Administration

30–60 mL/week

Goat's Rue 1:2

- Galactagogue
- Diuretic
- Diaphoretic

Golden Rod 1:2

Botanical Name:	*Solidago virgaurea*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Anticatarrhal, anti-inflammatory, diuretic, diaphoretic, antiseptic.

Major Indications

- Relief of upper respiratory tract catarrh or inflammation.*
- Indigestion; relief of the pain and burning sensation associated with cystitis.*
- Kidney and bladder stones (supportive and preventive).*

Contraindications and Cautions

Contraindicated in known allergy to golden rod. Allergic reactions may occur in susceptible patients sensitised to plants from the Compositae family. Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)

Golden Seal 1:3 (Cultivated)

Quantified Activity

Botanical Name:	*Hydrastis canadensis*
Plant parts used:	Root and rhizome
Ethanol content:	45%
Actives:	8.0 mg/mL hydrastine and 8.0 mg/mL berberine

Golden Seal 1:5 (Cultivated)

Botanical Name:	*Hydrastis canadensis*
Plant parts used:	Root and rhizome
Ethanol content:	45%

Major Actions

Anticatarrhal, mucous membrane trophorestorative, bitter tonic, haemostatic, anti-inflammatory, depurative.

Major Indications

- Relief of upper respiratory catarrh.*
- Indigestion, loss of appetite.*
- To support normal menstruation; relief of dysmenorrhoea.*
- Topically for inflammations of the mouth and throat.*
- Topically as a eye bath to support healthy conjunctiva.*
- Topically for relief of skin conditions.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and in neonatal jaundice. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

Golden Seal 1:3: 15–30 mL/week
Golden Seal 1:5: 25–50 mL/week

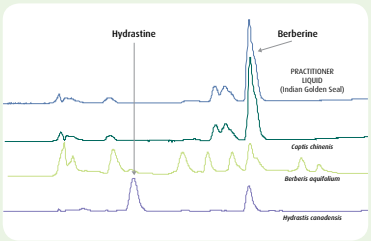
Refer to page 97 for how to make topical preparations.

- To make a gargle or eye bath, use 5 mL of 1:3 or 7 mL of 1:5 in 70–80 mL of saline.
- To make a cream, use 5 mL of 1:3 or 7 mL of 1:5 in 45 grams of vitamin E cream.

Hydrastis canadensis

Golden Seal Quality Issues

Golden Seal (*Hydrastis canadensis*) is an endangered herb and as a result is very expensive and often substituted by other herbs. The substituted herbs usually contain the substance berberine which provides the yellow colour, but they do not contain hydrastine which is unique to Golden Seal. Only HPLC enables this differentiation to be made. MediHerb only buys cultivated Golden Seal to ensure sustainability of the herb long term. MediHerb tests each batch of Golden Seal raw material and finished product to ensure the claimed levels of hydrastine and berberine are present. Using HPLC, MediHerb is able to clearly differentiate true Golden Seal from other berberine containing herbs. The table demonstrates the difference between the various berberine containing species. The top trace is an example of substitution where a professional product being sold in Australia as Indian Golden Seal matched the trace of Coptis chinensis.



* traditional use (Western herbal medicine)

Gotu Kola 1:1

Standardised

Botanical Name:	*Centella asiatica*
Plant parts used:	Herb
Ethanol content:	45%
Actives:	20 mg/mL of triterpenes

Centella asiatica

Major Actions

Depurative, peripheral vasodilator, brain tonic, anti-inflammatory, vulnerary.

Major Indications

- Relief of skin conditions.#
- To support healthy memory function.#
- Reduce swelling and symptoms of traumatic injuries.^
- To support healthy connective tissue, muscles and joints.*
- To support healthy peripheral circulation, and provide relief of heaviness and swelling in the legs.†
- To support vascular integrity.‡
- To help reduce inflammation during formation of scar tissue.‡
- Topically to support healthy wound healing.*
- Topically to relieve symptoms of varicose veins.†

Contraindications and Cautions

Contraindicated in known allergy to gotu kola. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Refer to page 97 for how to make topical preparations.
To make a cream, use 5 mL in 45 grams of vitamin E cream.

Gravel Root 1:2

Botanical Name:	*Eupatorium purpureum*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Diuretic, antilithic.

Major Indications

- Support for kidney and bladder stones.*
- Urinary incontinence.*
- Supports normal detoxification processes for healthy connective tissue, muscles and joints, including relief of gout.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)
# traditional use (Ayurveda)
† clinical study/trial (controlled)
‡ clinical study/trial (uncontrolled)

Greater Celandine 1:2

Botanical Name:	*Chelidonium majus*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Cholagogue, choleretic, antispasmodic.

Major Indications

- Sluggish liver, and to support healthy gallbladder function.*
- Indigestion.*

Contraindications and Cautions

Greater celandine may harm the liver in some people. Contraindicated in pre-existing liver disease/damage, pregnancy and lactation. Long-term use is associated with a low risk of a moderate idiosyncratic hepatotoxic reaction. Do not use for extended periods and discontinue use if evidence of liver damage arises (clinical outcome likely to be favourable after discontinuation). Use of this herb should not be combined with heavy alcohol consumption. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

7–15 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Grindelia 1:2

Botanical Name:	*Grindelia camporum*
Plant parts used:	Herb
Ethanol content:	60%

Major Actions

Expectorant, antispasmodic.

Major Indications

- Relief of bronchitis and cough.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Gymnema 1:1

Botanical Name:	*Gymnema sylvestre*
Plant parts used:	Leaf
Ethanol content:	23%

Major Actions

Tonic.

Major Indications

- To reduce the taste for sweet foods.#

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Hypoglycaemic herbs*).

Dosage and Administration

25–75 mL/week

To reduce the sweet taste (of foods and beverages), apply 1–2 mL of the extract directly to the tongue, add a small amount of water and swallow after one minute.

* traditional use (Western herbal medicine)
\# traditional use (Ayurveda)

Hawthorn Berries 1:2

Quantified Activity

Botanical Name:	*Crataegus monogyna*
Plant parts used:	Fruit
Ethanol content:	45%

Major Actions

Cardiotonic, vasodilator, astringent.

Major Indications

- To support healthy heart function and circulation.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–50 mL/week

Hawthorn Leaves 1:2

Quantified Activity

Botanical Name:	*Crataegus monogyna*
Plant parts used:	Leaf and flower
Ethanol content:	45%

Major Actions

Cardiotonic.

Major Indications

- To support healthy heart function.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage

10–30 mL/week

Hemidesmus 1:2

Botanical Name:	*Hemidesmus indicus*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Depurative, diaphoretic, tonic.

Major Indications

- Skin conditions, relief of cough, loss of appetite.#
- Support for feverish conditions.#

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–60 mL/week

* traditional use (Western herbal medicine)
† clinical trial (controlled)
# traditional use (Ayurveda)

Hops 1:2

Botanical Name:	*Humulus lupulus*
Plant parts used:	Strobile
Ethanol content:	60%

Major Actions

Sedative (mild), bitter tonic.

Major Indications

- Relief of sleeplessness, anxiety, neuralgia, headache.*
- Indigestion, lack of appetite.*

Contraindications and Cautions

Caution is advised in lactation. High doses are best avoided in oestrogen-sensitive breast cancer. Traditionally contraindicated in depression. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Horsechestnut 1:2

Botanical Name:	*Aesculus hippocastanum*
Plant parts used:	Seed
Ethanol content:	35%

Major Actions

Venotonic, anti-inflammatory, anti-ecchymotic (against bruises).

Major Indications

- Internally and topically to support healthy circulation, especially of the legs and to relieve varicose veins and haemorrhoids.*
- Topically for bruising.*

Contraindications and Cautions

Caution is advised in pregnancy, lactation and in patients with pre-existing cholestasis. Do not apply to broken or ulcerated skin. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–35 mL/week

Refer to page 97 for how to make topical preparations.
To make a cream, use 5 mL in 45 grams of vitamin E cream.

* traditional use (Western herbal medicine)

Horseradish 1:2

Botanical Name:	*Armoracia rusticana*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Anticatarrhal, mucolytic, warming (circulatory stimulant), antimicrobial.

Major Indications

- Upper respiratory catarrh, sinusitis.*
- To support a healthy urinary tract.*
- To aid digestion.*
- Hoarseness (as a syrup – *see note in Dosage and Administration*).*

Contraindications and Cautions

High doses are best avoided in pregnancy, peptic ulcer and hypothyroidism. Not advised in children under 4 years, and in lactation. Should not be taken in doses exceeding the maximum therapeutic range in the long term (due to constituents). Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

Note: Instead of a syrup, consider using the liquid extract with Flavouring Mixture, and if necessary, dilute with sterilised water.

Horsetail 1:2

Botanical Name:	*Equisetum arvense*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Diuretic, astringent.

Major Indications

- Support healthy elimination via the kidneys.*
- Relief of the pain and burning sensation associated with cystitis.*
- Support for inflammations of the urinary tract; bedwetting.*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Jamaica Dogwood 1:2

Botanical Name:	*Piscidia piscipula*
Plant parts used:	Bark
Ethanol content:	60%

Major Actions

Analgesic, antispasmodic, sedative.

Major Indications

- Relief of neuralgia, headache, sleeplessness.*
- Relief of nervous tension, anxiety.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation, bradycardia and cardiac insufficiency. Caution is advised for women wishing to conceive. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)

Kava 1:1

Standardised

Botanical Name:	*Piper methysticum*
Plant parts used:	Root
Ethanol content:	0%
Actives:	10 mg/mL of kavalactones

Major Actions

Sedative (mild), antispasmodic, analgesic (mild), local anaesthetic.

Major Indications

- Relief of nervous tension, sleeplessness.~
- Relief of stress.‡
- Relief of sore throat, headache, muscular tension.~

Contraindications and Cautions

Contraindicated in pre-existing liver damage or liver diseases. Due to possible dopamine antagonism, kava should be used cautiously in elderly patients and in those with Parkinson's disease. Not for prolonged use. Those who are pregnant or nursing are not recommended to use kava. In rare cases kava has been linked to liver damage. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

42–84 mL/week

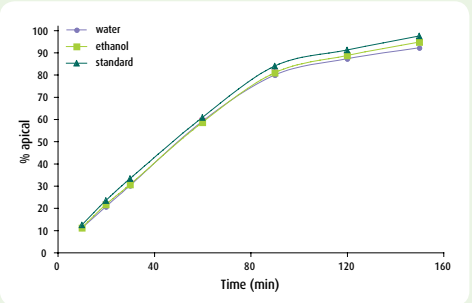
Piper methysticum

Kava Quality Issues

Kava is derived from the rootstock of the sterile cultivated species of *Piper methysticum*. The psychosedative property of Kava has been attributed to the kavalactones, a group of structurally related lipophilic lactones. These compounds can represent 3 to 20% by weight of the dried rootstock, depending on the age of the plant and the specific cultivar. The majority of the Kava used commercially in the world is in the form of a high ethanol or other organic solvent extract, which extracts little more than the kavalactones and has reported potential hepatoxicity concerns. The Therapeutic Goods Administration (TGA) allows water extracted or plain unextracted root to be sold in Australia.

Traditionally Kava beverages are prepared by chewing or pounding the root to produce a cloudy, milky mash, which is then consumed orally. It is known that extraction with different solvents affects the phytochemical profile of the extract.

MediHerb investigated the difference in bioavailability of the water extract of Kava and the 96% ethanol extract using the Caco-2 monolayer model. The kavalactones (as kawain) were found to be potentially bioavailable as they all crossed the membrane quite readily with the exception of one kavalactone (yangonin). The water extract of Kava was only slightly less bioavailable than the ethanol extract. Therefore the clinical effect of the water extract of Kava would be similar to that of an ethanol extract, with fewer hepatotoxicity concerns.



Kawain % apical average data

Time	water	ethanol	standard
10	11	11	12
20	21	22	23
30	30	31	33
60	59	59	61
90	80	81	84
120	87	89	91
150	92	95	97

~ traditional use (Pacific Islands)
‡ clinical study/trial (uncontrolled)

Korean Ginseng 1:2

Standardised

Botanical Name:	*Panax ginseng*
Plant parts used:	Root
Ethanol content:	60%
Actives:	10.5 mg/mL of ginsenosides with Rb^2: Rb^1 not less than 0.4 by HPLC

Major Actions

Adaptogen, tonic, immune enhancing, cardiotonic.

Major Indications

- Beneficial during times of stress.*
- To relieve physical or mental exhaustion.*
- To support healthy circulation.^
- Low mood.*
- To support good health in the elderly.*
- Combined with standardised Ginkgo extract to support memory function in healthy people.†

Contraindications and Cautions

Best not used during acute infections, or in combination with caffeine. Overstimulation may occur in susceptible individuals, especially at higher doses. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

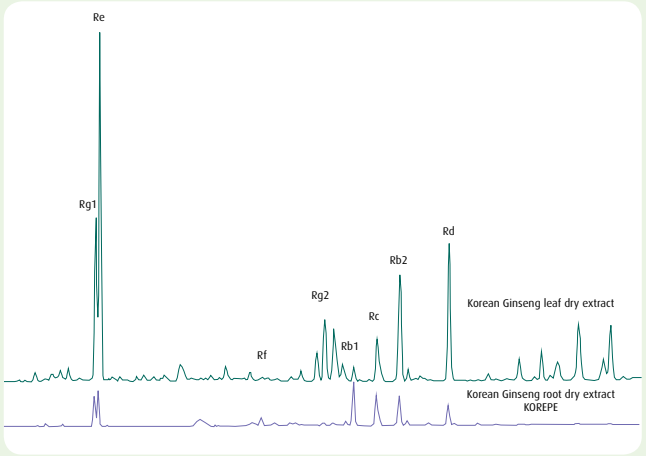
Dosage and Administration

7–40 mL/week

Panax ginseng

Korean Ginseng Quality Issues

Panax ginseng is a widely used and misunderstood herb. Traditionally the main root of the plant has been preferred for therapeutic use. The other parts of the plant such as the root hairs, leaves, leafstalks, etc are considered inferior and are never used medicinally in the East. However, many herb traders will sell the other plant parts as they are substantially cheaper than the main root. The major marker compounds used to characterise *Panax ginseng* are the ginsenosides which occur in all parts of the plant and if you were to only consider total ginsenosides the main root is not the highest in content. The importance is in the ratio of specific ginsenosides. The European clinical studies were undertaken on extracts manufactured from the main root of *Panax ginseng* which have a particular ratio of ginsenosides. To achieve the clinical results obtained traditionally and supported by clinical trials it is important to use raw material from the correct plant part and the correct species. This is readily achievable using HPLC which easily distinguishes the different preparations.



* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)
† clinical study/trial (controlled)

Ladies Mantle 1:2

Botanical Name:	*Alchemilla vulgaris*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Astringent, haemostatic.

Major Indications

- Relief of heavy menstruation, diarrhoea.*
- Topically for relief of leucorrhoea.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

Refer to page 97 for how to make topical preparations.
To make a douche, use 5 mL in 70–80 mL of saline.

Lavender 1:2

Botanical Name:	*Lavandula angustifolia*
Plant parts used:	Flower
Ethanol content:	60%


Lavandula angustifolia

Major Actions

Carminative, antispasmodic, thymoleptic, sedative (mild).

Major Indications

- Indigestion, flatulence, colic.*
- Low mood, restlessness, relief of sleeplessness.*
- Relief of headache.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Lemon Balm 1:2

Botanical Name:	*Melissa officinalis*
Plant parts used:	Herb
Ethanol content:	45%


Melissa officinalis

Major Actions

Carminative, sedative (mild), antispasmodic, diaphoretic.

Major Indications

- Indigestion, particularly if associated with nervousness; flatulence.*
- Relief of anxiety, low mood.*
- Sleeplessness, particularly if associated with nervousness.*
- Combined with valerian to improve sleep quality.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)

Licorice High Grade 1:1

Quantified Activity

Botanical Name:	*Glycyrrhiza glabra*
Plant parts used:	Root
Ethanol content:	20%
Actives:	30 mg/mL of glycyrrhizin

Licorice 1:1

Botanical Name:	*Glycyrrhiza glabra*
Plant parts used:	Root
Ethanol content:	20%

Glycyrrhiza glabra

Major Actions

Expectorant, demulcent, adrenal tonic, anti-inflammatory.

Major Indications

- Relief of bronchitis and coughs.*
- Short-term relief of indigestion.*
- Supports healthy adrenal function.*
- To support inflammations of the urinary tract.*
- Topically to relieve sore throat.*†
- Add to formulations as a flavouring.*
- Add to formulations to promote the harmonious activity of other herbs.^

Contraindications and Cautions

Assessment of the patient's blood pressure and other medications is required before prescribing licorice. Exercise care with elderly patients. Patients who are prescribed licorice that is high in glycyrrhizin other than for short periods should be placed on a high potassium and low sodium diet, and should be closely monitored for blood pressure increases and weight gain. High doses should not be taken for prolonged periods.

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

Licorice 1:1: 15–40 mL/week
Licorice High Grade 1:1: 10–30 mL/week

Refer to page 97 for how to make topical preparations.
To make a gargle, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)
^ traditional use (traditional Chinese medicine)

Lime Flowers 1:2

Botanical Name:	*Tilia cordata*
Plant parts used:	Flower
Ethanol content:	45%

Major Actions

Peripheral vasodilator, antispasmodic, diaphoretic, sedative (mild).

Major Indications

- To support healthy heart function.*
- Relief of fever associated with common cold.*
- Relief of sleeplessness, restlessness, headache.*

Contraindications and Cautions

Contraindicated in known allergy to lime flowers. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Polyphenol-containing or Flavonoid-containing herbs*).

Dosage and Administration

15–30 mL/week

Marshmallow Root 1:5

Botanical Name:	*Althaea officinalis*
Plant parts used:	Root
Ethanol content:	23%

Marshmallow Root Glycetract 1:5

Botanical Name:	*Althaea officinalis*
Plant parts used:	Root
Ethanol content:	0%

Althaea officinalis

Major Actions

Demulcent, emollient.

Major Indications

- Relief of hoarseness, cough, respiratory catarrh, inflammations of the mouth and pharynx.*
- To soothe mild gastrointestinal irritations.*
- Relief of the pain and burning sensation associated with cystitis.*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

As the glycetract tastes sweet, it may be useful alone or in liquid formulations for children – at a suitable dosage (*see page 19*).

* traditional use (Western herbal medicine)

Meadowsweet 1:2

Botanical Name:	*Filipendula ulmaria*
Plant parts used:	Herb
Ethanol content:	60%


Filipendula ulmaria

Major Actions

Anti-inflammatory, astringent.

Major Indications

- Symptomatic relief of heartburn.*
- Indigestion.*
- Supports healthy connective tissue, muscles and joints, including relief of arthritic conditions.*

Contraindications and Cautions

Caution in pregnancy and lactation. Avoid or use with caution in patients with salicylate sensitivity or glucose-6-phosphate dehydrogenase deficiency (in this condition salicylic acid can cause haemolytic anaemia). Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

20–40 mL/week

Mexican Valerian 1:2

Botanical Name:	*Valeriana edulis*
Plant parts used:	Root and rhizome
Ethanol content:	45%

Major Actions

Sedative (mild), anxiolytic.

Major Indications

- Relief of insomnia.†
- Relief of anxiety.▿

Contraindications and Cautions

Caution in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

Mistletoe 1:2

Botanical Name:	*Viscum album*
Plant parts used:	Herb
Ethanol content:	45%


Viscum album

Major Actions

Cardiotonic, sedative (mild).

Major Indications

- To support healthy heart function.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)
▿ traditional use (Mexican herbal medicine)
† clinical trial (controlled)

Motherwort 1:2

Botanical Name:	*Leonurus cardiaca*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Nervine, cardiotonic, antispasmodic, thyroid tonic (mild).

Major Indications

- Nervous tension.*
- To support healthy heart function.*
- To support normal menstruation and provide relief for dysmenorrhoea.*

Contraindications and Cautions

Caution in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–25 mL/week

Mullein 1:2

Botanical Name:	*Verbascum thapsus*
Plant parts used:	Leaf
Ethanol content:	23%

Verbascum thapsus

Major Actions

Expectorant, demulcent, anticatarrhal.

Major Indications

- Relief of bronchitis, cough, common cold.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Myrrh 1:5

Botanical Name:	*Commiphora myrrha*
Plant parts used:	Resin
Ethanol content:	90%

Commiphora myrrha

Major Actions

Astringent, antiseptic, anti-inflammatory, expectorant, vulnerary.

Major Indications

- Mouth ulcers, pharyngitis, respiratory catarrh, relief of common cold and bronchitis.*
- Topically for mouth inflammation and ulcers, relief of tonsillitis; minor wounds, skin abrasions.*

Contraindications and Cautions

Long-term use and intake during pregnancy is best avoided. Caution is advised in lactation (due to potential allergy). May cause contact allergy in certain individuals. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

Refer to page 97 for how to make topical preparations.

- To make a gargle, use 5 mL in 70–80 mL of saline.
- To make a cream, use 5 mL in 45 grams of vitamin E cream.

* traditional use (Western herbal medicine)

Nettle Leaf 1:2

Botanical Name:	*Urtica dioica*
Plant parts used:	Leaf
Ethanol content:	23%

Major Actions

Depurative, haemostatic, diuretic.

Major Indications

- Skin conditions, including eczema.*
- To support normal detoxification processes for healthy connective tissue, muscles and joints.*
- Relief of allergic rhinitis.†
- To support normal menstruation.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Nettle Root 1:2

Botanical Name:	*Urtica dioica*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Antiprostatic.

Major Indications

- Supports normal urination in men.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Nigella 1:2

Botanical Name:	*Nigella sativa*
Plant parts used:	Seed
Ethanol content:	60%

Nigella sativa

Major Actions

Aromatic digestive, carminative, diaphoretic, anthelmintic.

Major Indications

- Indigestion, loss of appetite.#
- Support for feverish conditions.#
- Relief of allergic rhinitis.†
- To support the elimination of parasitic worms from the gut.†

Contraindications and Cautions

Contraindicated in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

28–84 mL/week

* traditional use (Western herbal medicine)
† clinical trial (controlled)
# traditional use (Ayurveda)

Oats Green 1:2

Botanical Name:	*Avena sativa*
Plant parts used:	Herb
Ethanol content:	23%


Avena sativa

Major Actions

Nervine tonic, sedative (mild).

Major Indications

- Relief of anxiety, nervousness.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Oats Seed 1:1

Botanical Name:	*Avena sativa*
Plant parts used:	Seed
Ethanol content:	23%

Major Actions

Nervine tonic, thymoleptic.

Major Indications

- As a tonic to aid recovery in convalescence or for fatigue.*
- Low mood, psychological aspects of menopause.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Olive Leaves 1:2

Botanical Name:	*Olea europaea*
Plant parts used:	Leaf
Ethanol content:	45%

Major Actions

Astringent, febrifuge.

Major Indications

- To support healthy heart function.*
- To provide support for fevers.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

* traditional use (Western herbal medicine)

Oregon Grape 1:2

Botanical Name:	*Berberis aquifolium*
Plant parts used:	Root and rhizome
Ethanol content:	23%

Major Actions

Depurative, cholagogue (mild), tonic.

Major Indications

- Skin disorders, especially eczema; acne.*
- Relief of gastritis and to support healthy gallbladder function.*

Contraindications and Cautions

Contraindicated in pregnancy and lactation. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

Paeonia 1:2

Botanical Name:	*Paeonia lactiflora*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Antispasmodic, skeletal muscle relaxant (mild), analgesic, antihidrotic.

Major Indications

- Menstrual disorders.^
- Relief of colic and muscular pain.^
- Excessive perspiration, night sweats.^
- Very commonly used for women's disorders.^

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

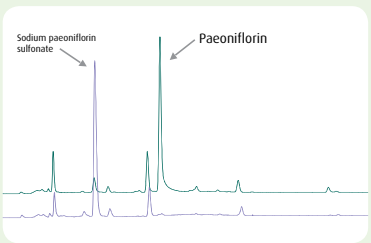
Dosage and Administration

30–60 mL/week

Paeonia lactiflora

Paeonia Quality Issues

Paeonia lactiflora is a widely used herb in Traditional Chinese Medicine and as is common in this modality, herbs are often treated in many different ways to produce a more palatable or efficacious product. The therapeutically important plant part is the root of the plant, which as it occurs naturally is approximately 1 to 2 cm round cylindrical roots, varying in colour from off-white to pinky-brown. Much of the paeonia root which used in commerce is in the form of pure white root slices, which have been treated by sulphiting agents to preserve the plant material's appearance, by reduction of enzymatic browning. This treatment also has the side effect of reacting with the main bioactive compound from Paeonia (paeoniflorin – a complex monoterpene glycoside) and forming a stable new compound sodium paeoniflorin sulfonate. This is readily seen by HPLC where the peak from paeoniflorin is absent in the herb which has been treated by sulphiting (bottom trace), whereas it is the major component in the untreated herb (top trace).



* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Pasque Flower 1:2

Botanical Name:	*Anemone pulsatilla*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Antispasmodic, sedative (mild), analgesic (mild).

Major Indications

- To support healthy functioning of the female reproductive tract, including relief of dysmenorrhoea and ovarian pain and to support normal menstruation.*
- Relief of restlessness, headache, sleeplessness.*

Contraindications and Cautions

Contraindicated in pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

3–10 mL/week

Caution: The daily dose of this liquid extract is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Passionflower 1:2

Botanical Name:	*Passiflora incarnata*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Sedative (mild), anxiolytic, antispasmodic.

Major Indications

- Relief of sleeplessness.†
- Relief of restlessness, mild anxiety, headache, dysmenorrhoea, neuralgia.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

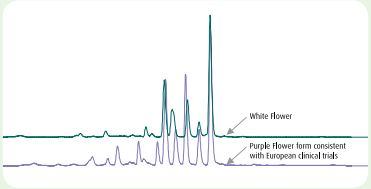
Dosage and Administration

15–40 mL/week

Passiflora incarnata

There are over 500 species of Passionflower, which includes the edible passionfruit and varieties grown for their characteristic flowers. The preferred medicinal species is *Passiflora incarnata* which is native to the Americas and has many common names, including 'Maypop' and 'Purple Passionflower'. The original forms of this plant have flowers varying in colour from pale lavender through to dark violet. There is also a white-flowered form which appears in the wild, as well as in cultivation, and is sold as *P. incarnata* "Alba".

During routine analysis in the MediHerb Research Laboratory it became evident that there were two different phytochemical profiles of Passionflower being encountered. The samples varied in the flavonoid constituents which are among the proposed therapeutically active components. In conjunction with Southern Cross University it was determined that the different flavonoid profiles were related to the colour of the flowers (purple or white). The clinical evidence for Passionflower is derived from European clinical trials and the corresponding phytochemical profiles have been published. By using LC/MS it was determined that these profiles matched that of the purple-flowered form. Two of the peaks are consistent between the two different forms, however, the remaining 8 or more flavonoids are different. Without using at least HPLC, or ideally LC/MS, this differentiation is easily missed and the inappropriate form might be used.



* traditional use (Western herbal medicine)
† clinical study/trial (controlled)

Pelargonium 1:5

Botanical Name:	*Pelargonium sidoides*
Plant parts used:	Root
Ethanol content:	20%

Major Actions

Antibacterial, immune enhancing.

Major Indications

- Relief of bronchitis, common cold, sinusitis, tonsillitis.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

20–40 mL/week

Peppermint 1:2

Quantified Activity

Botanical Name:	*Mentha* x *piperita*
Plant parts used:	Leaf
Ethanol content:	45%
Actives:	1.2 mg/mL of menthol

Major Actions

Antispasmodic, carminative, diaphoretic.

Major Indications

- Indigestion, colic.*
- Relief of nausea.*
- Relief of dysmenorrhoea, common cold.*
- Add to formulations as a flavouring.*

Contraindications and Cautions

Contraindicated in gastro-oesophageal reflux. Caution is advised in lactation (may dry up milk). Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

† clinical trial (controlled)
* traditional use (Western herbal medicine)

Pleurisy Root 1:2

Botanical Name:	*Asclepias tuberosa*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Diaphoretic, expectorant, antispasmodic.

Major Indications

- Relief of bronchitis, common cold and influenza.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Poke Root 1:5

Botanical Name:	*Phytolacca americana*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Lymphatic, depurative, anticatarrhal.

Major Indications

- Conditions involving inflammation of the mouth, throat and lymph glands.*
- To support healthy functioning of the female reproductive glands.*
- To support healthy connective tissue, muscles and joints, including relief of arthritic conditions.*
- Internally and topically to provide relief for mastitis (*see note in Dosage and Administration*).*

Contraindications and Cautions

Do not exceed the recommended dose, as doing so may produce severe vomiting and diarrhoea in certain patients. Contraindicated in pregnancy, lactation and those with gastrointestinal irritation. Do not use for longer than 6 months. Do not apply to broken or ulcerated skin. Contact with the eyes should be avoided. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

1–5 mL/week

Caution: The daily dose of this tincture is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Note: The preparation used for this indication was a poultice, instead, consider using poke root in a cream. Wash off the breast before feeding.

Refer to page 97 for how to make topical preparations.
To make a cream, use 2 mL in 48 grams of vitamin E cream.

* traditional use (Western herbal medicine)

Prickly Ash 1:2

Botanical Name:	*Zanthoxylum clava-herculis*
Plant parts used:	Bark
Ethanol content:	45%

Major Actions

Circulatory stimulant, diaphoretic.

Major Indications

- Supports healthy circulation, including to the hands and feet.*
- Relief of respiratory catarrh.*
- Supports healthy connective tissue and joints, and relieves cramps.*
- Indigestion.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–30 mL/week

Propolis 1:5

Botanical Name:	N/A
Plant parts used:	Resin
Ethanol content:	90%

Major Actions

Antiseptic, local anaesthetic, antiviral, vulnerary, immune modulating.

Major Indications

- Relief of sore throat.‡
- Relief of mouth ulcers.†
- Internally for warts.†
- Topically as a mouthwash for healthy gums and minor mouth wounds.†
- Topically as a gargle to relieve sore throat, mouth and throat infections.*
- Topically as a mouthwash to support oral health.‡
- Topically for supportive therapy of minor burns.†
- Topically to relieve symptoms of cold sores (*see note in Dosage and Administration*).†
- Topically for minor skin wounds (*see note in Dosage and Administration*).‡

Contraindications and Cautions

Contraindicated in known allergy to propolis or other bee products. Contact allergy may occur in those allergic to Peruvian balsam or poplar bud extracts. Caution in patients with a history of allergy, especially skin rashes. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–40 mL/week

Note: The preparation used for this indication was an ointment, instead, consider using propolis in a cream.

Refer to page 97 for how to make topical preparations.

- To make a mouthwash or gargle, use 5 mL in 70–80 mL of saline.
- To make a cream, use 5 mL in 45 grams of vitamin E cream.

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)
‡ clinical study/trial (uncontrolled)

Qing Hao 1:2

Botanical Name:	*Artemisia annua*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Bitter tonic, febrifuge, antiparasitic.

Major Indications

- Support for feverish conditions.^

Contraindications and Cautions

Contraindicated in pregnancy. Caution in lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–50 mL/week

Raspberry Leaves 1:2

Botanical Name:	*Rubus idaeus*
Plant parts used:	Leaf
Ethanol content:	23%

Major Actions

Uterine tonic, astringent.

Major Indications

- To support healthy uterine muscle function.*
- Relief of diarrhoea.*
- Relief of heavy menstruation.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

30–100 mL/week

^ traditional use (traditional Chinese medicine)
* traditional use (Western herbal medicine)

Red Clover Flowers 1:2

Botanical Name:	*Trifolium pratense*
Plant parts used:	Flower
Ethanol content:	23%

Red Clover Flowering Tops 1:2

Botanical Name:	*Trifolium pratense*
Plant parts used:	Flowering herb top (flowers and some leaf and stem)
Ethanol content:	23%

Trifolium pratense

Major Actions

Depurative, expectorant.

Major Indications

- Skin disorders, especially eczema.*
- Relief of bronchitis and cough.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–40 mL/week

Rehmannia 1:2

Botanical Name:	*Rehmannia glutinosa*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Haemostatic, diaphoretic, anti-inflammatory.

Major Indications

- Relief of fever, sore throat.^
- Skin complaints.^
- To support normal menstruation.^

Contraindications and Cautions

Caution in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

Rhodiola 2:1

Standardised

Botanical Name:	*Rhodiola rosea*
Plant parts used:	Root
Ethanol content:	45%
Actives:	3.0 mg/mL of rosavins and 1.0 mg/mL of salidroside

Major Actions

Adaptogen.

Major Indications

- Beneficial during times of stress.*
- Relief of mental fatigue.*

Contraindications and Cautions

Best not used in combination with caffeine. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

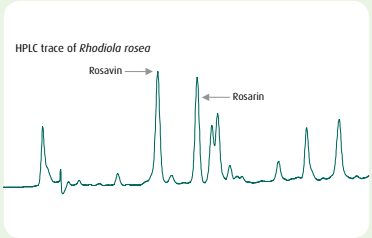
20–40 mL/week

Rhodiola rosea (Sedum roseum)

Rhodiola Quality Issues

Rhodiola rosea (*Sedum roseum*) is commonly referred to as Golden Root or Roseroot and grows in dry sandy ground at high altitudes in the arctic regions of Europe and Asia. The freshly cut root has a rose-like odour that has led to its botanical name and one of its common names. The root has been used for centuries in the traditional medicines of Russia and Scandinavia. There are however 16 common species of Rhodiola growing in the Eurasian area. Of these, 11 have been tested in animal studies, but only *R. rosea* (17 studies) and *R. crenulata* (1) have been assessed in human trials.

Most of the Rhodiola species have been reported to contain the marker compound salidroside and this was originally used to standardise extracts of *Rhodiola rosea*. After more than a decade of research, however, it was shown that the chemical composition of *R. rosea* root is, in fact, different to the other species of the genus Rhodiola. Using newly developed methods of analysis, it was shown that *R. rosea* root contains three cinnamyl alcohol-vicianosides: rosavin, rosin, and rosarin that are specific to this species. They are collectively termed rosavins. HPLC offers a ready method to differentiate true *Rhodiola rosea* from the other species offered on the market. The two major rosavins found are rosavin and rosarin, with only very low quantities of rosin.



Ribwort 1:2

Botanical Name:	*Plantago lanceolata*
Plant parts used:	Leaf
Ethanol content:	23%

Major Actions

Anticatarrhal, demulcent, astringent, antibacterial.

Major Indications

- Respiratory catarrh; relief of cough, rhinitis, sinusitis, otitis media.*
- Mild inflammation of the mouth and throat, internally and as a gargle or mouthwash.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

* traditional use (Western herbal medicine)

Rosemary 1:2

Quantified Activity

Botanical Name:	*Rosmarinus officinalis*
Plant parts used:	Leaf
Ethanol content:	60%
Actions:	1.2 mg/mL of essential oil

Rosmarinus officinalis

Major Actions

Carminative, antispasmodic, thymoleptic, circulatory stimulant.

Major Indications

- Indigestion, poor appetite, low mood.*
- Relief of headache.*
- Supports healthy memory function.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Polyphenol-containing or Flavonoid-containing herbs*).

Dosage and Administration

15–30 mL/week

Saffron 1:20

Botanical Name:	*Crocus sativus*
Plant parts used:	Stigma
Ethanol content:	60%

Major Actions

Nervine tonic, antispasmodic, diaphoretic (mild).

Major Indications

- Low mood.#
- Relief of fever, cough.#
- Relief of dysmenorrhoea.*
- Restlessness.*
- To support normal menstruation.*^#
- To support healthy retinal function.†

Contraindications and Cautions

Caution is advised in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–25 mL/week

Sage 1:2

Quantified Activity

Botanical Name:	*Salvia officinalis*
Plant parts used:	Herb
Ethanol content:	60%
Actives:	0.64 mg/mL of essential oil

Major Actions

Anti-inflammatory, astringent, antiseptic.

Major Indications

- Excessive sweating.*
- Topically as a gargle or mouthwash to relieve inflammations of the mouth and throat.*

Contraindications and Cautions

Caution in pregnancy, especially in the first trimester. Contraindicated in lactation except to stop milk flow. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

15–30 mL/week

Refer to page 97 for how to make topical preparations.
To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)
^ traditional use (traditional Chinese medicine)
# traditional use (Ayurveda)

Saffron 1:20

- Nervine tonic
- Antispasmodic
- Diaphoretic

Sarsaparilla 1:2

Botanical Name:	*Smilax ornata*
Plant parts used:	Root and rhizome
Ethanol content:	45%

Major Actions

Depurative, anti-inflammatory, tonic.

Major Indications

- Skin conditions.*
- Supports normal detoxification processes for healthy connective tissue, muscles and joints.*

Contraindications and Cautions

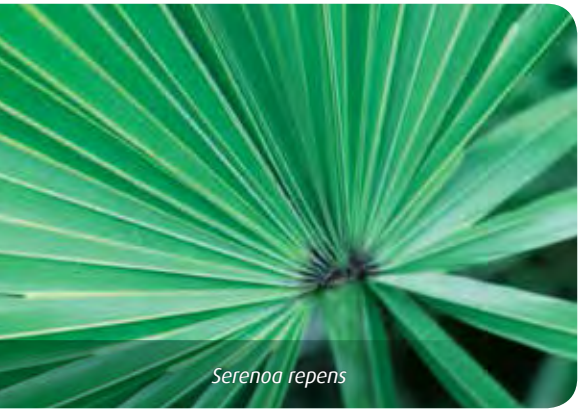
Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Saw Palmetto 1:2

Botanical Name:	*Serenoa repens*
Plant parts used:	Fruit
Ethanol content:	45%


Serenoa repens

Major Actions

Antispasmodic, tonic, anti-inflammatory, diuretic.

Major Indications

- Conditions of the prostate and urinary tract (particularly of men) that require tonic and antispasmodic action.*
- Relief of the pain and burning sensation associated with cystitis.*
- Conditions requiring a tonic action to the reproductive organs (both sexes).*

Contraindications and Cautions

Advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

* traditional use (Western herbal medicine)

Schisandra 1:2

Botanical Name:	*Schisandra chinensis*
Plant parts used:	Fruit
Ethanol content:	45%

Major Actions

Tonic, sedative, astringent, adaptogen, antitussive.

Major Indications

- Fatigue.^
- Insomnia, irritability, poor memory.^
- Excessive perspiration, night sweats.^
- Support for healthy liver function.‡
- Used in cough formulations.^

Contraindications and Cautions

Traditionally contraindicated in the early stages of cough or rash. Has been used traditionally to induce labour, so contraindicated in pregnancy, except at birth. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

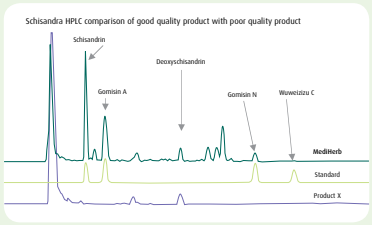
Dosage and Administration

25–60 mL/week

Schisandra chinensis

Schisandra Quality Issues

Schisandra is a well known Chinese herb, however it is not well known that two species of Schisandra are used in TCM, the phytochemical profile of each being very different. *Schisandra chinensis* (northern Schisandra) is the preferred species in TCM and by Western health care professionals. It contains compounds called schisandrins (schisandrin, gomisin A, deoxyschisandrin, gomisin N and wuweizizu C) which are believed responsible for the therapeutic effects. Southern Schisandra, *Schisandra spenanthera*, (*see Product X in the trace*) is considered inferior due to lower levels of schisandrins, however it is often used interchangeably with *Schisandra chinensis*. Manufacturers therefore need to be very careful to avoid substitution with *Schisandra spenanthera*. The species are readily distinguishable morphologically and by HPLC.



Senna Pods 1:2

Botanical Name:	*Senna* spp.
Plant parts used:	Fruit
Ethanol content:	45%

Major Actions

Stimulating laxative.

Major Indications

- Relief of constipation; to provide soft stools to aid haemorrhoids.*

Contraindications and Cautions

Do not use in intestinal upsets, including irritation, inflammations and diarrhoea. Do not use for prolonged periods or in children under 12 years. Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Laxative herbs*).

Dosage and Administration

10–40 mL/week

^ traditional use (traditional Chinese medicine)
‡ clinical study/trial (uncontrolled)
* traditional use (Western herbal medicine)

Shatavari 1:2

Botanical Name:	*Asparagus racemosus*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Female sexual tonic, general tonic, galactagogue, antispasmodic.

Major Indications

- Support well-being in women.#
- Support normal lactation.#

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

30–60 mL/week

Shepherd's Purse 1:2

Botanical Name:	*Capsella bursa-pastoris*
Plant parts used:	Herb
Ethanol content:	23%

Capsella bursa-pastoris

Major Actions

Haemostatic.

Major Indications

- Relief of heavy menstruation.*

Contraindications and Cautions

Caution in pregnancy and lactation. Should not be taken in doses exceeding the maximum therapeutic range in the long term (due to constituents). Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Siberian Ginseng 1:2

Standardised

Botanical Name:	*Eleutherococcus senticosus*
Plant parts used:	Root
Ethanol content:	45%
Actives:	0.5 mg/mL of eleutheroside E

Major Actions

Adaptogen, tonic.

Major Indications

- Relief of fatigue.*
- Support mental and/or physical performance.*

Contraindications and Cautions

It is advisable to discontinue use of high doses during acute infections, unless used in conjunction with powerful antimicrobial therapy or in a formulation with proven efficacy. Caution is advised in hypertension when used at the higher end of the dosage range. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–55 mL/week

traditional use (Ayurveda)
* traditional use (Western herbal medicine)

Skullcap 1:2

Botanical Name:	*Scutellaria lateriflora*
Plant parts used:	Herb
Ethanol content:	45%

Scutellaria lateriflora

Major Actions

Nervine tonic, sedative (mild).

Major Indications

- Relief of restlessness, sleeplessness, headache, neuralgia.*
- Low mood.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Squaw Vine 1:2

Botanical Name:	*Mitchella repens*
Plant parts used:	Whole plant
Ethanol content:	23%

Major Actions

Uterine tonic, astringent.

Major Indications

- To support healthy uterine muscle function.*
- Relief of dysmenorrhoea.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

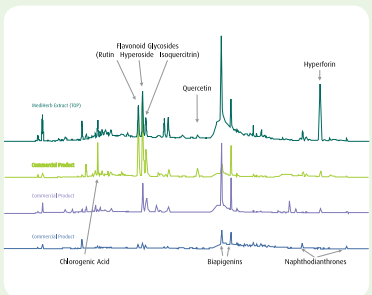
Dosage and Administration

20–40 mL/week

Hypericum perforatum

St John's Wort Quality Issues

St John's wort is comprised of a wide range of phytochemicals of which the naphthodiantrones (consisting mainly of hypericin and psuedohypericin) are characteristic, while several other constituents are found across a very wide variety of plant species: eg chlorogenic acid, flavonoids and biapigenins. Studies have shown that hypericin administered with flavonoid glycosides caused an increase in the bioavailability of hypericin. St John's wort has been containing the flavonoid glycosides but devoid of hypericin and hyperforin have been shown to be pharmacologically active in model systems. Additionally extracts devoid of hyperforin have been proven effective in clinical trials as have extracts containing hyperforin. In the graph, all extracted contained the same level of napthodianthrones (hypericins), however a wide range of variation was shown for the other constituents when analysed by HPLC. Some extracts having very low levels of all the phytochemicals you would expect in a good quality extract of *Hypericum perforatum*. MediHerb recognises the importance of all the other constituents, particularly the OPCs and flavonoids and tests all of its products using the techniques which allow the identification of these components.



* traditional use (Western herbal medicine)

St John's Wort High Grade 1:2

Quantified Activity

Botanical Name:	*Hypericum perforatum*
Plant parts used:	Flowering herb top
Ethanol content:	60%
Actives:	0.4 mg/mL of hypericin

St John's Wort 1:2

Quantified Activity

Botanical Name:	*Hypericum perforatum*
Plant parts used:	Flowering herb top
Ethanol content:	45%
Actives:	0.2 mg/mL of hypericin

Hypericum perforatum

Major Actions

Nervine, sedative, astringent.

Major Indications

- Relief of anxiety and neuralgia.*
- Relief of symptoms of menopause.*
- Fatigue, especially if due to nervous tension.*
- Low mood.*†
- Relief of sleeplessness.*
- To support healthy bladder function in children.*
- Topically for minor wounds.*
- Topically for relief of symptoms of mild psoriasis (*see note in Dosage and Administration*).†

Contraindications and Cautions

Avoid in patients with known sensitivity to St John's wort. Patients taking high doses are advised to avoid excessive exposure to sunlight or artificial UVA light. St John's wort should be used cautiously in patients with known photosensitivity or in patients taking photosensitising agents. St John's wort is not suited for the treatment of serious depression with psychotic symptoms, suicidal risk or signs and symptoms that are so severe that they do not allow the patient's family or work involvements to continue. However, in these cases, St John's wort may be a valuable adjunct to other therapy such as drug therapy and psychotherapy. St John's wort affects the way many prescription medicines work, including the oral contraceptive pill. Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Clinicians should avoid dispensing the sediment from St John's wort liquid extracts.

Note: The preparation used for this indication was an ointment, instead, consider using St John's wort in a cream (which will be more a more comfortable application – less heating).

Refer to page 97 for how to make topical preparations.
To make a cream, use 5 mL in 45 grams of vitamin E cream.

* traditional use (Western herbal medicine)
† clinical study/trial (controlled)

St Mary's Thistle 1:1

Quantified Activity

Botanical Name:	*Silybum marianum*
Plant parts used:	Fruit
Ethanol content:	70%
Actives:	19 mg/mL of silymarin

St Mary's Thistle Glycetract 1:1

Quantified Activity

Botanical Name:	*Silybum marianum*
Plant parts used:	Fruit
Ethanol content:	less than 5%
Actives:	25 mg/mL of silymarin

Major Actions

Liver tonic, hepatoprotective, bitter tonic.

Major Indications

- To support healthy liver and gallbladder function.*
- Indigestion.*
- Feeling run down or tired.*

Contraindications and Cautions

Contraindicated in known allergy to St Mary's thistle, caution in patients with known sensitivity to other plants in the Compositae family. Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

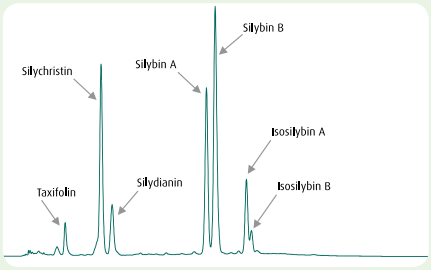
30–60 mL/week

As the glycetract does not contain alcohol it may be suitable as a liver tonic for those who need to restrict their intake of alcohol. As the glycetract tastes sweet, it may be useful alone or in liquid formulations for children – at a suitable dosage (*see page 19*).

Silybum marianum

St Mary's Thistle Quality Issues

St Mary's Thistle (*Silybum marianum*) contains a range of flavanolignans (silybin A and B, silychristin, silydianin, isosilybin and 2,3-dehydro derivatives) collectively called silybin or silymarin, as well as simple flavonoids such as taxifolin. Flavanolignans are important indicators of quality and efficacy. The flavanolignans are often measured analytically by the non-specific and less accurate 2,4-dinitrophenylhydrazine colourimetric method, which also reacts with any ketonic compounds, which includes the flavonoid taxifolin. MediHerb has developed a High Performance Liquid Chromatographic method to allow the individual levels of the flavanolignans to be accurately measured, and determine a value for these which is not inflated by the presence of simple flavonoids.



* traditional use (Western herbal medicine)

Sundew 1:5

Botanical Name:	*Drosera longifolia*
Plant parts used:	Herb
Ethanol content:	60%

Major Actions

Antispasmodic, antitussive, demulcent, expectorant.

Major Indications

- Relief of symptoms of bronchitis and cough, gastric discomfort.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Thuja 1:5

Botanical Name:	*Thuja occidentalis*
Plant parts used:	Leaf
Ethanol content:	60%

Thuja occidentalis

Major Actions

Antimicrobial, expectorant, depurative.

Major Indications

- Internally and topically for warts.*
- Relief of bronchitis.*
- As part of a regimen to support general health, particularly of the female reproductive tract.*
- Topically for fungal infections of skin.*

Contraindications and Cautions

Contraindicated in pregnancy and lactation. Best avoided in epilepsy. Recommended dose should not be exceeded. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

10–20 mL/week

Caution: The daily dose of this tincture is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Refer to page 97 for how to make topical preparations.
To make a cream, use 5 mL in 45 grams of vitamin E cream.

* traditional use (Western herbal medicine)

Thyme 1:2

Quantified Activity

Botanical Name:	*Thymus vulgaris*
Plant parts used:	Leaf
Ethanol content:	60%
Actives:	2.4 mg/mL of thymol/carvacrol

Thymus vulgaris

Major Actions

Expectorant, antispasmodic, antitussive, antibacterial, carminative.

Major Indications

- Respiratory catarrh, relief of bronchitis.*
- Indigestion.*
- As a flavouring in cough preparations.*
- Topically for inflammations of the mouth and throat.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

Refer to page 97 for how to make topical preparations.
To make a gargle or mouthwash, use 5 mL in 70–80 mL of saline.

Tienchi Ginseng 1:2

Botanical Name:	*Panax notoginseng*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Haemostatic, anti-inflammatory.

Major Indications

- Relief of heavy menstruation.^
- Swelling and pain due to sprains and bruising.^
- Improves physical performance during exercise.†
- Supports healthy heart function.‡

Contraindications and Cautions

Contraindicated in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–60 mL/week

Tribulus 2:1

Standardised

Botanical Name:	*Tribulus terrestris*
Plant parts used:	Aerial parts
Ethanol content:	60%
Actives:	30 mg/mL of furostanol saponins as protodioscin

Major Actions

Tonic, hormonal modulator.

Major Indications

- To balance and support normal male physiology and function.‡
- To promote general well-being in men and women.‡

Contraindications and Cautions

Caution in pregnancy, lactation and in patients with pre-existing cholestasis. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

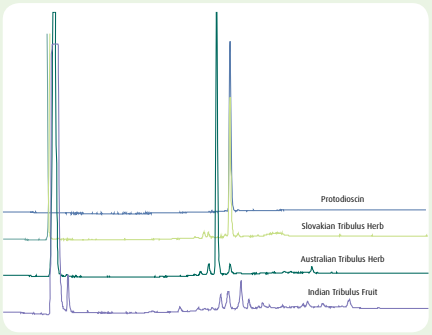
50–100 mL/week

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)
† clinical trial (controlled)
‡ clinical trial (uncontrolled)


Tribulus terrestris

Tribulus Quality Issues

Tribulus terrestris is a herb which is endemic to many different geographical zones, from the Mediterranean regions, India, China, South Africa and Australia. Research undertaken by MediHerb has shown that the phytochemical profile of the herb varies depending upon the geographical origin and the plant part utilised. Only herb sourced from the Central European regions of Bulgaria and Slovakia have been found to contain protodioscin, which is an important indicator of quality and efficacy. Additionally only the leaves and stem of the plant contain protodioscin, the fruit does not contain this phytochemical. MediHerb has undertaken this research to ensure that our Tribulus product is of the correct phytochemical profile to ensure phytoequivalence with the Bulgarian clinical trials and therefore optimal therapeutic outcome.



True Unicorn Root 1:2

Botanical Name:	*Aletris farinosa*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Bitter tonic, antispasmodic, sedative (mild).

Major Indications

- Indigestion, lack of appetite, colic.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

12–40 mL/week

* traditional use (Western herbal medicine)

Turmeric 1:1

Botanical Name:	*Curcuma longa*
Plant parts used:	Rhizome
Ethanol content:	60%


Curcuma longa

Major Actions

Carminative, depurative, choleretic.

Major Indications

- Indigestion.*
- Relief of skin conditions.#
- To support healthy liver function.*#
- To support healthy bowel function.†

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

35–100 mL/week

Valerian 1:2

Botanical Name:	*Valeriana officinalis*
Plant parts used:	Root
Ethanol content:	45%

Major Actions

Sedative (mild), anxiolytic, antispasmodic.

Major Indications

- Relief of insomnia and nervousness.*
- Combined with lemon balm to improve sleep quality.†
- Relief of headache, muscle cramps, dysmenorrhoea.*

Contraindications and Cautions

Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

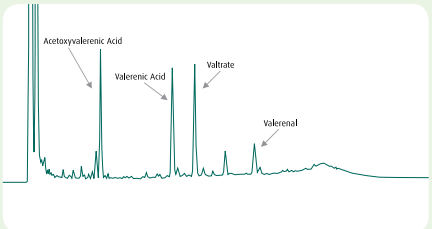
Dosage and Administration

15–40 mL/week


Valeriana officinalis

Valerian Quality Issues

Valerian (*Valeriana officinalis*) contains Valerenic acids (predominantly acetoxyvalerenic and valerenic acids and low levels of hydroxyvalerenic acid) and valepotriates (valtrate and isovaltrate). While other common medicinal species of valeriana may contain the valepotriates they contain little valerenic acids. MediHerb has developed a High Performance Liquid Chromatography analytical method to determine the levels of valerenic acids and valepotriates in Valerian. This method can also determine the level of the baldrinals (valtrate degradation products) which are an indicator of poor quality herb. By using this analytical method on Valerian 1:2 liquid extract, MediHerb assures that this product contains high levels of valerenic acids and valepotriates, with no baldrinals.



* traditional use (Western herbal medicine)
\# traditional use (Ayurveda)
† clinical study/trial (controlled)

Vervain 1:2

Botanical Name:	*Verbena officinalis*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Nervine tonic, diaphoretic (mild), galactagogue.

Major Indications

- Relief of nervous tension, anxiety, low mood.*
- Provide support for feverish conditions.*
- Supports healthy liver function, appetite and digestion.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Polyphenol-containing or Flavonoid-containing herbs*).

Dosage and Administration

20–40 mL/week

Violet Leaves 1:2

Botanical Name:	*Viola odorata*
Plant parts used:	Leaf
Ethanol content:	60%

Major Actions

Expectorant, depurative.

Major Indications

- Relief of coughs and bronchitis, respiratory catarrh; skin conditions.*
- A depurative as part of a regimen to support general health and well-being.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

12–25 mL/week

White Horehound 1:2

Botanical Name:	*Marrubium vulgare*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Expectorant, antispasmodic, bitter tonic.

Major Indications

- Relief of bronchitis, common cold, cough.*
- Indigestion.*

Contraindications and Cautions

Caution in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

* traditional use (Western herbal medicine)

Wild Cherry 1:2

Botanical Name:	*Prunus serotina*
Plant parts used:	Bark
Ethanol content:	23%

Major Actions

Antitussive.

Major Indications

- Relief of cough, bronchitis.*

Contraindications and Cautions

Caution in pregnancy. Professional supervision is suggested for lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Wild Yam 1:2

Quantified Activity

Botanical Name:	*Dioscorea villosa*
Plant parts used:	Root and rhizome
Ethanol content:	60%
Actives:	15 mg/mL of steroidal saponins

Major Actions

Antispasmodic, anti-inflammatory.

Major Indications

- Gastrointestinal spasm, including colic; poor gallbladder function.*
- Dysmenorrhoea, ovarian pain.*
- Relief of arthritic complaints and muscular cramps.*
- Internally to relieve menopausal symptoms.*

Contraindications and Cautions

Caution may be warranted in patients with gallstones, due to the potential for impacted gallstones and obstructed bile ducts. Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

20–40 mL/week

Willow Bark 1:2

Botanical Name:	*Salix* spp.
Plant parts used:	Bark
Ethanol content:	45%

Salix spp.

Major Actions

Anti-inflammatory, analgesic, antipyretic, astringent.

Major Indications

- Supports healthy connective tissue, muscles and joints, including relief of arthritic conditions.*
- Support for feverish conditions including common cold and influenza.*
- Relief of mild headache.*

Contraindications and Cautions

Contraindicated in lactation, those with known allergy or sensitivity to salicylates or glucose-6-phosphate dehydrogenase deficiency (in this condition salicylic acid can cause haemolytic anaemia). Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

25–50 mL/week

* traditional use (Western herbal medicine)


Dioscorea villosa

Wild Yam Quality Issues

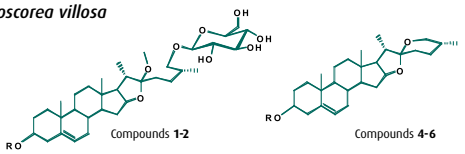
There are some 600 species of Yam in the genus Dioscorea, many of them are wild species that flourish in damp woodlands and thickets. *Dioscorea villosa*, also known as Colic Root or Wild Yam, is a twining, tuberous vine native to eastern North America. The roots initially taste starchy, but soon after are bitter and acrid, nothing like the taste of Yam or Sweet Potato grown for the dinner table.

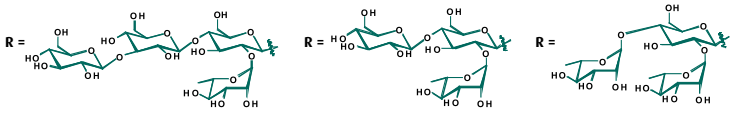
Commercial Wild Yam extracts available for use as raw materials are often not *Dioscorea villosa* but instead *Dioscorea opposita* (Chinese Yam Root) which has a different phytochemical profile.

It is widely misconstrued that *Dioscorea villosa* contains diosgenin and many products have this as a statement on their labels. However it does not contain diosgenin, but rather the diosgenin precursors. Traditionally *Dioscorea villosa* was believed to contain predominantly dioscin, however, the origin of this assignment is unclear (dioscin is a steroidal glycoside precursor of diosgenin).

The phytochemical profile of Wild Yam is poorly-defined and based on scientific literature from the 1940s. MediHerb undertook a project in conjunction with Associate Professor James De Voss, Chemistry Department, University of Queensland to investigate the phytochemistry. Commercially available *Dioscorea villosa* is in the form of dried roots, usually harvested at the end of summer or autumn when the plant is dying back to its rootstock. It was found that these roots contained only very small amounts of dioscin, not the predominance as previously thought. The major saponin found in the autumn harvested roots were in fact the furostanol-based saponins, methylparvifloside and methylprotodeltonin, while the spirostanol-based saponins, Zingiberensis saponin I and deltonin were the major saponins for samples harvested in summer. The autumn storage saponins differ from the summer saponins by the presence of an extra glucose at the C-26 position of the diosgenin base structure. The two main compounds found in commercial material – harvested in autumn – are significantly different from dioscin by having an extra one or two glucose residues in methylprotodeltonin and methylparvifloside respectively. All of these compounds have been reported from other Disocorea species, however, the profile of saponins was different in the other species.

Major Saponins of *Dioscorea villosa*





1 – Methylparvifloside
4 – Zingiberensis saponin I or glucosidodeltonin

2 – Methylprotodeltonin
5 – Deltonin

6 – Dioscin

* traditional use (Western herbal medicine)

Willow Herb 1:2

Botanical Name:	*Epilobium parviflorum*
Plant parts used:	Herb
Ethanol content:	23%

Major Actions

Prostate tonic.

Major Indications

- Conditions of the prostate that require tonic action.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Tannin-containing or OPC-containing herbs*).

Dosage and Administration

20–40 mL/week

Withania 2:1

Standardised

Botanical Name:	*Withania somnifera*
Plant parts used:	Root
Ethanol content:	45%
Actives:	4 mg/mL of withanolides

Major Actions

Tonic, adaptogen, sedative (mild).

Major Indications

- General well-being, particularly in children and the elderly.#
- Fatigue, relief of sleeplessness.#
- To support healthy stress response and normal male reproductive function.‡
- To support healthy cognitive function.#

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

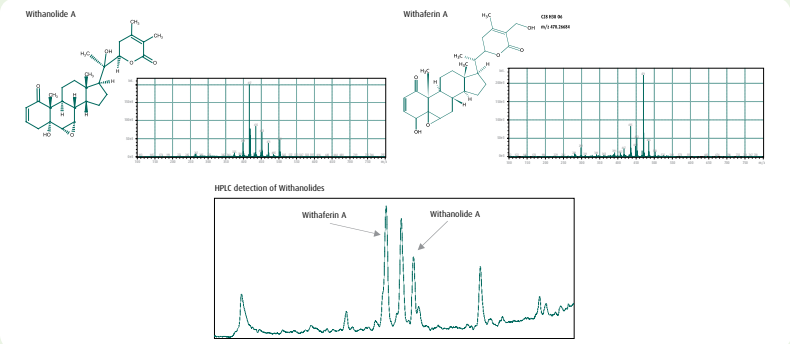
Dosage and Administration

10–30 mL/week

Withania somnifera

Withania Quality Issues

Withania (*Withania somnifera*) is an Indian (Ayurvedic) herb which contains a group of therapeutically important steroidal compounds referred to collectively as withanolides. Withania contains more than fifty withanolides which vary greatly depending upon the geographic location and plant part. The withanolide profile and content is a key determinant of Withania quality and efficacy. Liquid Chromatography/Mass Spectrometry (LC/MS) is the method of choice for characterising such a wide range of similar compounds and unequivocably identifying key major components such as withaferin A and withanolide A. This technique is used routinely in the MediHerb Quality Control Laboratories to identify and analyse Withania and other saponin-containing herbs.



* traditional use (Western herbal medicine)
# traditional use (Ayurveda)
‡ clinical study/trial (uncontrolled)

Wood Betony 1:2

Botanical Name:	*Stachys officinalis*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Sedative (mild), nervine, bitter tonic.

Major Indications

- Relief of headache, anxiety, neuralgia, indigestion.*

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–30 mL/week

Wormwood 1:5

Botanical Name:	*Artemisia absinthium*
Plant parts used:	Herb
Ethanol content:	45%

Major Actions

Bitter tonic, anthelmintic.

Major Indications

- Lack of appetite, indigestion, flatulence.*
- To support the elimination of parasitic worms from the gut.*

Contraindications and Cautions

Contraindicated in pregnancy, lactation and hyperacidity. Caution is advised in known sensitivity to wormwood or other plants of the Compositae. Do not exceed the recommended dosage range. Not for long-term use. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

5–20 mL/week

Caution: The daily dose of this tincture is low, the dosage range is narrow and/or adverse effects may occur if prescribed above the maximum daily dose. Accurate measurement of dose is vital to minimise the chance of adverse effects and/or toxicity.

Yarrow 1:2

Botanical Name:	*Achillea millefolium*
Plant parts used:	Herb
Ethanol content:	45%

Achillea millefolium

Major Actions

Diaphoretic, peripheral vasodilator, bitter tonic, haemostatic.

Major Indications

- Relief of fever associated with common cold and influenza.*
- To support healthy circulation.*
- Indigestion, poor appetite.*
- To support normal menstruation.*

Contraindications and Cautions

Caution in pregnancy and lactation. Contraindicated in known allergy to yarrow, and caution is advised in known sensitivity to other plants of the Compositae family. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

15–40 mL/week

* traditional use (Western herbal medicine)

Yellow Dock 1:2

Botanical Name:	*Rumex crispus*
Plant parts used:	Root
Ethanol content:	23%

Major Actions

Laxative (mild), cholagogue, depurative.

Major Indications

- Relief of constipation.*
- Indigestion, flatulence, sluggish liver.*
- Relief of skin conditions.*

Contraindications and Cautions

Caution is advised in lactation. Professional supervision is suggested for pregnancy. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions (*see Laxative herbs*).

Dosage and Administration

15–30 mL/week

Zizyphus 1:2

Botanical Name:	*Zizyphus jujuba* var. *spinosa*
Plant parts used:	Seed
Ethanol content:	23%

Major Actions

Sedative (mild), anxiolytic, antihidrotic.

Major Indications

- Relief of sleeplessness.^
- Relief of anxiety, irritability.^
- Excessive perspiration, night sweats.

Contraindications and Cautions

Professional supervision is suggested for pregnancy and lactation. Discontinue 7 days prior to general anaesthesia. Refer to the MediHerb Herb-Drug Interaction chart for potential interactions.

Dosage and Administration

40–80 mL/week

* traditional use (Western herbal medicine)
^ traditional use (traditional Chinese medicine)

How to Make Topical Applications

Throughout this publication several liquid extracts have been mentioned as useful topical preparations for a variety of conditions. In this section the methods of preparation are described. Generally the quantities given refer to 1:2 liquid extracts. Consideration should be given to any potential contraindications, such as allergy in susceptible patients.

Gargles and Mouthwashes

Gargles are recommended for conditions affecting the throat whilst mouthwashes are indicated for conditions involving the oral cavity. The method of preparation is identical for each formulation.

Method: Simply add 5 mL of an extract or a combination of extracts that does not exceed 5 mL to 70 to 80 mL of water or saline solution and gargle or rinse in mouth. Once the gargling or mouthwashing has been performed the patient should expel the mixture – not swallow it. Any unused herbal water/saline mix should be discarded.

Although a single herbal extract or tincture can be used, it is often more effective to combine a number of herbs. The following formulations can be prescribed for either mouthwashes or throat gargles depending on the symptoms.

Indication: Relief of upper respiratory infections.

Myrrh 1:5 or Propolis 1:5	35 mL
Echinacea Premium 1:2	30 mL
Licorice High Grade 1:1	25 mL

Indication: To support healing in the mouth and throat.

Golden Seal 1:3	30 mL
Gotu Kola 1:1	45 mL
Licorice High Grade 1:1	25 mL

Indication: To support healthy gums.

Golden Seal 1:3	20 mL
Gotu Kola 1:1	30 mL
Myrrh 1:5	30 mL
Licorice High Grade 1:1	20 mL

Hydrastis canadensis

Eyebaths

Eyebaths can be used to relieve the discomfort of tired, irritated or dry eyes, as well as to support healthy conjunctiva.

The mixture should be blended before pouring into an eyebath.

Add 5 to 6 drops of a herbal extract, or a combination of herbal extracts that doesn't exceed 5 to 6 drops, to an eyebath. Fill the eyebath with saline solution or recently boiled water. Allow to cool and use immediately. If bathing both eyes there should be a separate eyebath for both eyes in order to avoid cross contamination in the case of infections.

For eyebaths of larger volumes, 5 mL of herbal extract or a combination of extracts can be blended with 70 to 80 mL of saline solution or recently boiled water. Place in an eyebath and bathe the eye/s as required. Making larger volumes than this is not recommended –due to dilution, the alcohol may no longer be antimicrobial, thereby increasing the chance of bacterial growth.

Indication: To support healthy conjunctiva as well as tired, irritated or dry eyes.

Barberry 1:2	40 mL
Eyebright 1:2	40 mL
Calendula 1:2 (low alcohol 23%)	20 mL

Calendula officinalis

Nasal Sprays

Nasal sprays are an excellent way for patients to relieve the nasal congestion associated with sinusitis. Patients can make up a nasal spray by firstly buying a saline nasal spray from the pharmacy (make sure the cap is removable) and removing approximately 25% of the saline solution. They then refill the bottle with the 'nasal spray' herbal formula you have prescribed.

Indication: Relief of upper respiratory catarrh.

Eyebright 1:2	30 mL
Golden Seal 1:3	30 mL
Thyme 1:2	20 mL
Licorice High Grade 1:1	20 mL

Indication: Relief of the symptoms of allergies.

Eyebright 1:2	30 mL
Golden Seal 1:3	20 mL
Albizia 1:2	30 mL
Licorice High Grade 1:1	20 mL

Indication: To support healing of nasal tissue.

Gotu Kola 1:1	30 mL
Golden Seal 1:3	25 mL
Calendula 1:2 (low alcohol 23%)	25 mL
Licorice High Grade 1:1	20 mL

Creams and Ointments

The topical use of herbs in creams and ointments can be very effective, however, the available range of prepared creams and ointments is quite limited. Practitioners who wish to use a wider range can manufacture their own herbal creams by using a suitable neutral base.

How to Make Herbal Creams using MediHerb Vitamin E Cream

The MediHerb Vitamin E Cream is a high quality, non-irritant, neutral cream base that is capable of incorporating herbal extracts, volatile and infused oils without losing its emulsion. The vitamin E acts mainly as an antioxidant and preservative, but will also contribute to the therapeutic effect.

Equipment

- glass or stainless steel mixing bowl. If using glass make sure there are no cracks or chips, which could harbour contaminants.
- stainless steel whisk.
- stainless steel spatula.
- gram scales.

All equipment used to prepare creams must be sterilised immediately before use (boiling in water or soaking in "Milton" type solutions are very effective). All equipment should be used exclusively for cream making and stored in a clean, dry place after use.

It is important when making the cream to use aseptic techniques, so the following is advised:

- Choose a preparation area free from open windows and doors, and ensure the working surface is clean.
- Wash hands with soap and water and dry thoroughly before handling the cream.
- Use a sterile instrument to take the cream from the mixing container and transfer to a sterile container.
- Store the cream below 30ºC and away from direct sunlight.
- Replace the lid firmly to ensure the contents are sealed.
- Advise patients not to remove cream from jar with their finger, but use a clean stainless steel implement.

Method

Combine the herb extracts and MediHerb Vitamin E Cream. Stir thoroughly until a smooth consistency is obtained and put immediately into sterilised jars.

Volatile oils can also be used. Stir thoroughly until the oil is incorporated into the cream and put immediately into sterilised jars.

Calendula Plus Cream

MediHerb Vitamin E Cream	100 g
Propolis 1:5	5 mL
Myrrh 1:5	5 mL
Calendula 1:2 (low alcohol 23%)	5 mL

Indication: Antiseptic support for skin abrasions.

Note: As the tinctures and extracts are incorporated without the removal of alcohol, the resultant cream will sting if applied to broken skin.

Horsechestnut Cream

MediHerb Vitamin E Cream	100 g
Horsechestnut 1:2	7 mL
Yarrow 1:2	8 mL

Indication: Relief of haemorrhoids and varicose veins.

Note: Because of the irritant effect of the saponins, horsechestnut should not be applied to broken or ulcerated skin.

Skin Healing Cream

MediHerb Vitamin E Cream	100 g
Gotu Kola 1:1	7 mL
Calendula 1:2 (low alcohol 23%)	7 mL
St John's Wort 1:2	7 mL

Indication: Minor wounds and abrasions.

Poke Root Cream

MediHerb Vitamin E Cream	100 g
Poke Root 1:5	2.5 mL

Indication: Relief of mastitis.

Note: The cream must be washed free of the breast before breast feeding.

Tea Tree Cream

MediHerb Vitamin E Cream	100 g
Tea Tree Oil (100%, volatile oil)	5 mL

Indication: Superficial fungal skin infections.

Tea Tree Cream Plus

MediHerb Vitamin E Cream	90 g
Tea Tree Oil (100%, volatile oil)	5 mL
Rosemary Oil (100%, volatile oil)	5 mL

Indication: Superficial fungal skin infections.

Ointments

Ointments are a little more challenging to prepare than creams – ointment bases are fat soluble and will only incorporate small percentages of liquid extracts which are poorly fat soluble.

A basic ointment contains:

- 14% beeswax
- 10% cocoa butter
- 76% vegetable oil (olive, almond, jojoba etc)

This base will only incorporate a maximum of 5% of liquid extracts.

Rosmarinus officinalis

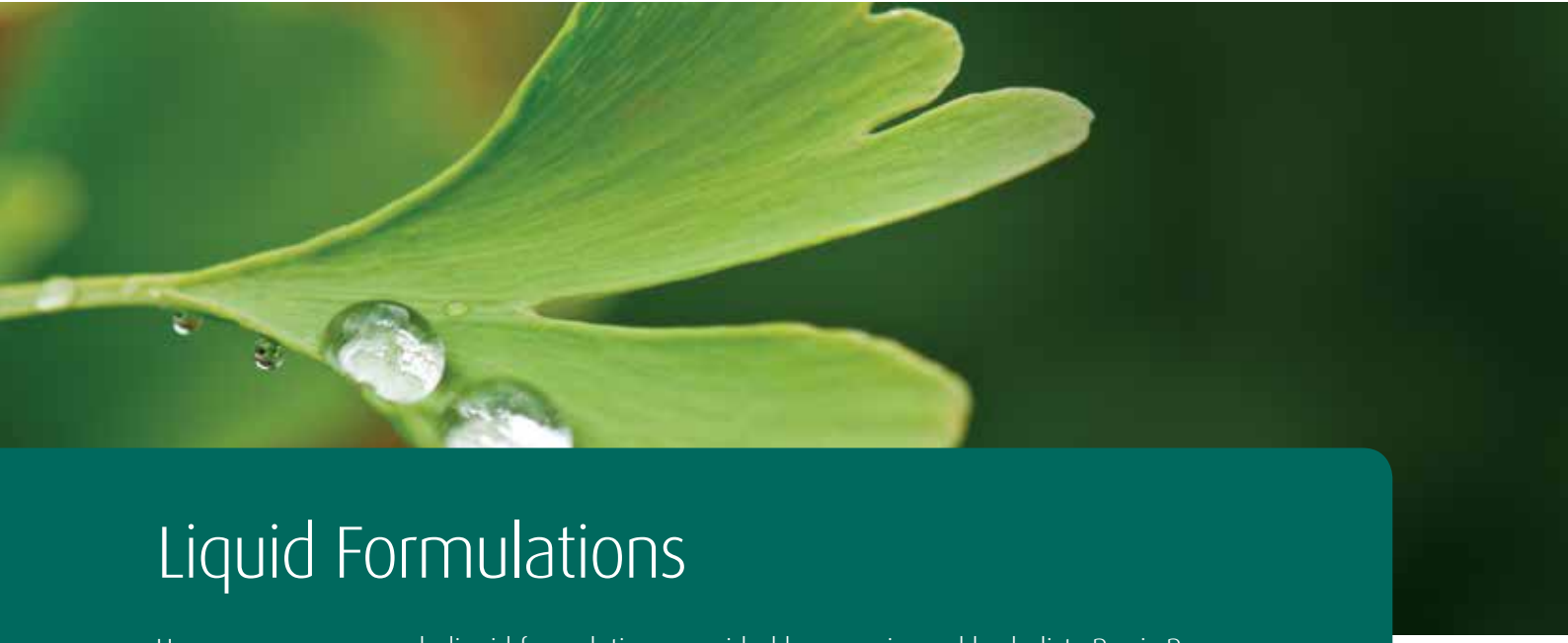
Method

Melt the beeswax and cocoa butter with the vegetable oil over a water bath in a suitable vessel. Once melted, remove from the water bath carefully. It will be hot so allow it to sit for several minutes before adding the herbal extracts. Stir the mixture constantly until it is obvious that the mixture is homogenous. Whilst still warm and slightly liquid pour into sterilised jars. The following formula will make approximately 16 x 30 g jars.

Antiseptic Ointment

Beeswax	55 g
Cocoa butter	39 g
Vegetable oil	325 mL
Golden Seal 1:3	6.5 mL
Echinacea Premium 1:2	13 mL
Myrrh 1:5	13 mL

Indication: Antiseptic support for skin abrasions, where a sustained action is required.



Liquid Formulations

Here are some example liquid formulations provided by experienced herbalists Berris Burgoyne, Rob Santich & Kerry Bone. Note: Consideration should be given to any potential contraindications in susceptible patients.

Seminar Blends: These are the popular liquid formulations we use at our tasting bar at seminars.

Brain Tonic

Rhodiola 2:1	35 mL
Bacopa 1:2	35 mL
Ginkgo Biloba 2:1	30 mL
	100 mL

Dose: 7.5 mL 2 times daily or 5 mL 3 times daily

Energy Tonic

Rhodiola 2:1	40 mL
Rehmannia 1:2	35 mL
Licorice High Grade 1:1	25 mL
	100 mL

Dose: 7.5 mL 2 times daily or 5 mL 3 times daily

Immune Tonic

Andrographis 1:2	35 mL
Echinacea Premium 1:2	30 mL
Pelargonium 1:5	30 mL
Ginger 1:2	5 mL
	100 mL

Dose: 7.5 mL 2 times daily or 5 mL 3 times daily

Acne Support

Calendula (low alcohol 23%) 1:2	15 mL
Chaste Tree 1:2	15 mL
Echinacea Premium 1:2	20 mL
Rehmannia 1:2	30 mL
Bupleurum 1:2	25 mL
	105 mL

Dose: 5 mL 3 times daily

Adrenal & Energy Support

Rehmannia 1:2	40 mL
Rhodiola 2:1	35 mL
Withania 2:1	25 mL
	100 mL

Dose: 7.5 mL 2 times daily

Cystitis Symptom Relief

Echinacea Premium 1:2	35 mL
Buchu 1:2	20 mL
Licorice High Grade 1:1	15 mL
Crataeva 1:2	30 mL
	100 mL

Dose: 5 mL with water 4 to 6 times daily in the short term; for longer-term application and to improve the health of the urinary tract use 5 mL 3 times daily.

Note to advise patients: If pain or irritation associated with cystitis persists for more than 48 hours, consult your doctor. The presence of blood in the urine warrants immediate medical attention.

Herbal Cough Syrup

Licorice High Grade 1:1	15 mL
Meadowsweet 1:2	15 mL
Marshmallow Root Glycetract 1:5	80 mL
	110 mL

Dose: 4 mL undiluted up to 6 times a day

Low Mood

St John's Wort 1:2	30 mL
Saffron 1:20	30 mL
Rhodiola 2:1	20 mL
Licorice High Grade 1:1	20 mL
	100 mL

Dose: 8 mL with water 2 times daily.

Sinus Support

Echinacea Premium 1:2	30 mL
Eyebright 1:2	20 mL
Baical Skullcap 1:2	20 mL
Nigella 1:2	20 mL
Ribwort 1:2	20 mL
	110 mL

Dose: 8 mL with water 2 times daily

Upper Digestive Support

Gentian 1:2	80 mL
Cinnamon Quills 1:2	20 mL
	100 mL

Dose: ½ mL in water 20 minutes before meals

Note: Caution in peptic ulcer and hyperacidity.

Hypericum perforatum

MediHerb First Dispensary

The MediHerb First Dispensary is designed to provide the newly graduated practitioner with a comprehensive kit of all the herbs you need to get started. Fundamental to your success as a new practitioner are good quality herbal medicines that are supported by stringent quality control and significant research and development.

Purchase of the MediHerb First Dispensary provides you with:

A comprehensive range of the highest quality liquid herbal extracts carefully selected for their therapeutic efficacy and multiplicity of use covering all body systems. The Dispensary reflects the modern trend towards combining herbs from not only the Western herbal tradition, but also those from other great herbal traditions such as Ayurveda and TCM. Please refer to the pages 102 to 106 for full details of extract potency.

- Discounted price with herbal extracts packaged in 200 mL bottles providing great value for money.
- 50% discount on entry to one MediHerb seminar in the first twelve months after purchase.
- 10% discount on your next MediHerb order.
- 20 empty 200 mL bottles for dispensing.
- Dispensing labels (1 roll of 200 labels).
- Prescription pad (100 page pad with carbon paper).

200 mL Herbal Extracts Included:	
Adhatoda 1:2	Meadowsweet 1:2
Astragalus 1:2	Nettle Leaf 1:2
Bacopa 1:2	Oats Seed 1:1
Baical Skullcap 1:2	Olive Leaves 1:2
Black Cohosh 1:2 *Quantified Activity*	Passionflower 1:2
Burdock 1:2	Prickly Ash 1:2
Calendula 1:2	Red Clover (Flowering Tops) 1:2
Chamomile 1:2	Rhodiola 2:1 *Standardised*
Chaste Tree 1:2	Ribwort 1:2
Cramp Bark 1:2	Sage 1:2 *Quantified Activity*
Crataeva 1:2	Saw Palmetto 1:2
Dandelion Root 1:2	Schisandra 1:2
Echinacea Premium 1:2 *Quantified Activity*	Shatavari 1:2
Elecampane 1:2	Siberian Ginseng 1:2 *Standardised*
Eyebright 1:2	St John's Wort High Grade 1:2 *Quantified Activity*
Gentian 1:2	Thyme 1:2 *Quantified Activity*
Ginger 1:2	Wild Yam 1:2 *Quantified Activity*
Hawthorn Leaves 1:2 *Quantified Activity*	Withania 2:1 *Standardised*
Licorice High Grade 1:1 *Quantified Activity*	Please note that only one First Dispensary per person is permitted.

To order your MediHerb First Dispensary, please contact Customer Service:

Phone: 1300 654 336 **Fax:** 1300 654 844 *NOTE: The MediHerb First Dispensary is only available for purchase in Australia.*

Dosage Index

Common Name	Botanical Name	Extract Ratio	Plant Part	Ethanol %	Weekly Dosage (mLs)
A					
Adhatoda	*Justicia adhatoda*	1:2	Leaf	45%	10 to 25
Agrimony	*Agrimonia eupatoria*	1:2	Herb	45%	15 to 30
Albizia	*Albizia lebbeck*	1:2	Bark	23%	25 to 60
Aloes Resin	*Aloe* spp.	1:10	Resin	23%	10 to 30
Andrographis	*Andrographis paniculata*	1:2	Herb	45%	20 to 40
Arnica	*Arnica montana*	1:5	Flower	45%	Not for internal use
Astragalus	*Astragalus membranaceus*	1:2	Root	23%	30 to 60
B					
Bacopa	*Bacopa monniera*	1:2	Herb	23%	35 to 90
Baical Skullcap	*Scutellaria baicalensis*	1:2	Root	60%	30 to 60
Baptisia	*Baptisia tinctoria*	1:2	Root	60%	8 to 20
Barberry	*Berberis vulgaris*	1:2	Bark	45%	20 to 40
Bearberry	*Arctostaphylos uva-ursi*	1:2	Leaf	45%	30 to 60
Beth Root	*Trillium erectum*	1:2	Root	60%	10 to 30
Bilberry	*Vaccinium myrtillus*	1:1	Fruit	23%	20 to 40
Black Cohosh **QA**	*Actaea racemosa*, contains a minimum of 15 mg/mL triterpene glycosides as 27-deoxyactein	1:2	Root	60%	10 to 20
Black Walnut Hulls	*Juglans nigra*	1:10	Hulls	60%	10 to 40
Bladderwrack	*Fucus vesiculosus*	1:1	Whole plant	23%	30 to 60
Blue Cohosh	*Caulophyllum thalictroides*	1:2	Root	70%	10 to 20
Blue Flag	*Iris versicolor*	1:2	Root	60%	20 to 40
Buchu	*Agathosma betulina*	1:2	Leaf	60%	15 to 30
Bugleweed	*Lycopus* spp.	1:2	Herb	23%	15 to 40
Bupleurum	*Bupleurum falcatum*	1:2	Root	45%	25 to 60
Burdock	*Arctium lappa*	1:2	Root	23%	10 to 25
Butcher's Broom	*Ruscus aculeatus*	1:2	Root	45%	25 to 50
Butternut	*Juglans cinerea*	1:2	Bark	23%	25 to 50
C					
Calendula	*Calendula officinalis*	1:2	Flower	90%	10 to 30
Calendula (low alcohol)	*Calendula officinalis*	1:2	Flower	23%	10 to 30
Californian Poppy	*Eschscholzia californica*	1:2	Herb	45%	20 to 40
Cascara	*Frangula purshiana*	1:2	Bark	23%	20 to 55
Cat's Claw **QA**	*Uncaria tomentosa*, contains a minimum of 1.5 mg/mL pentacyclic oxindole alkaloids	1:2	Inner bark	60%	30 to 75
Cayenne	*Capsicum* spp.	1:3	Fruit	60%	0.5 to 3
Celery Seed **QA**	*Apium graveolens*, contains a minimum of 10 mg/mL phthalides as butylphthalide and sedanenolide	1:2	Fruit	60%	30 to 60
Chamomile	*Matricaria chamomilla*	1:2	Flower	60%	20 to 40
Chaste Tree	*Vitex agnus-castus*	1:2	Fruit	60%	6 to 30
Chen Pi (Mandarin Peel)	*Citrus reticulata*	1:2	Fruit peel	45%	25 to 50
Cinnamon Quills	*Cinnamomum cassia*	1:2	Bark	70%	20 to 40

Common Name	Botanical Name	Extract Ratio	Plant Part	Ethanol %	Weekly Dosage (mLs)
C					
Clivers	*Galium aparine*	1:2	Herb	23%	25 to 50
Codonopsis	*Codonopsis pilosula*	1:2	Root	45%	30 to 60
Coleus **QA**	*Coleus forskohlii*, contains a minimum of 2.5 mg/mL forskolin	1:1	Root	60%	40 to 90
Corn Silk	*Zea mays*	1:1	Style and stigma	23%	15 to 40
Corydalis	*Corydalis ambigua*	1:2	Tuber	45%	25 to 60
Couch Grass	*Elymus repens*	1:1	Rhizome	23%	20 to 40
Cramp Bark	*Viburnum opulus*	1:2	Bark	30%	5 to 30
Crataeva	*Crataeva nurvala*	1:2	Bark	23%	40 to 100
D					
Damiana	*Turnera diffusa*	1:2	Leaf	60%	20 to 40
Dan Shen	*Salvia miltiorrhiza*	1:2	Root	45%	25 to 50
Dandelion Leaves	*Taraxacum officinale*	1:1	Leaf	23%	40 to 80
Dandelion Root	*Taraxacum officinale*	1:2	Root	23%	20 to 40
Devil's Claw	*Harpagophytum* spp.	1:2	Root	23%	40 to 80
Dong Quai	*Angelica sinensis*	1:2	Root	45%	30 to 60
E					
Echinacea Angustifolia Root **QA**	*Echinacea angustifolia*, contains a minimum of 1.6 mg/mL alkylamides	1:2	Root	60%	20 to 40
Echinacea Purpurea Root **QA**	*Echinacea purpurea*, contains a minimum of 1.0 mg/mL alkylamides	1:2	Root	60%	20 to 40
Echinacea Purpurea Glycetract	*Echinacea purpurea*	1:3	Root	<5%	30 to 60
Echinacea Premium Blend **QA**	60% *Echinacea purpurea* root 1:2 and 40% *Echinacea angustifolia* root 1:2, contains a minimum of 1.5 mg/mL alkylamides	1:2	Root	60%	20 to 40
Echinacea Regular Blend	40% *Echinacea angustifolia* root 1:2 and 60% *Echinacea purpurea* fresh plant	1:2 and F/P	Root and flowering top	57%	15 to 40
Elder Flowers	*Sambucus nigra*	1:2	Flower	23%	15 to 40
Elecampane	*Inula helenium*	1:2	Root	60%	20 to 40
Euphorbia	*Euphorbia hirta*	1:2	Herb	60%	5 to 12
Eyebright	*Euphrasia officinalis*	1:2	Herb	45%	15 to 30
F					
False Unicorn	*Chamaelirium luteum*	1:2	Root	45%	15 to 40
Fennel	*Foeniculum vulgare*	1:2	Fruit	60%	20 to 40
Fenugreek	*Trigonella foenum-graecum*	1:2	Seed	45%	15 to 30
Feverfew **QA**	*Tanacetum parthenium*, contains a minimum of 0.3 mg/mL parthenolide	1:5	Leaf	60%	7 to 14
Flavouring Mixture	*Glycyrrhiza glabra* 1:1, *Foeniculum vulgare* 1:2, *Stevia rebaudiana* 1:2 with essential oil of orange and lemon		N/A	27%	5 to 20
Fringe Tree	*Chionanthus virginica*	1:2	Stem bark	45%	20 to 40
G					
Garlic	*Allium sativum*	1:1 (fresh weight)	Bulb	45%	40 to 80
Gentian	*Gentiana lutea*	1:2	Root	45%	5 to 15

Common Name	Botanical Name	Extract Ratio	Plant Part	Ethanol %	Weekly Dosage (mLs)
G					
Ginger	*Zingiber officinale*	1:2	Rhizome	90%	5 to 15
Ginkgo Biloba **S**	*Ginkgo biloba*, contains 9.6 mg/mL ginkgo flavone glycosides	2:1	Leaf	50%	21 to 28
Globe Artichoke	*Cynara scolymus*	1:2	Leaf	60%	20 to 55
Goat's Rue	*Galega officinalis*	1:2	Herb	23%	30 to 60
Golden Rod	*Solidago virgaurea*	1:2	Herb	45%	20 to 40
Golden Seal (cultivated) **QA**	*Hydrastis canadensis*, contains a minimum of 8.0 mg/mL hydrastine and 8.0 mg/mL berberine	1:3	Root and rhizome	45%	15 to 30
Golden Seal (cultivated)	*Hydrastis canadensis*	1:5	Root and rhizome	45%	25 to 50
Gotu Kola **S**	*Centella asiatica*, contains 20 mg/mL triterpenes	1:1	Herb	45%	15 to 40
Gravel Root	*Eupatorium purpureum*	1:2	Root	45%	15 to 30
Greater Celandine	*Chelidonium majus*	1:2	Herb	45%	7 to 15
Grindelia	*Grindelia camporum*	1:2	Herb	60%	10 to 20
Gymnema	*Gymnema sylvestre*	1:1	Leaf	23%	25 to 75
H					
Hawthorn Berries **QA**	*Crataegus monogyna*	1:2	Fruit	45%	10 to 50
Hawthorn Leaves **QA**	*Crataegus monogyna*	1:2	Leaf and flower	45%	10 to 30
Hemidesmus	*Hemidesmus indicus*	1:2	Root	45%	25 to 60
Hops	*Humulus lupulus*	1:2	Strobile	60%	10 to 20
Horsechestnut	*Aesculus hippocastanum*	1:2	Seed	35%	15 to 35
Horseradish	*Armoracia rusticana*	1:2	Root	23%	25 to 50
Horsetail	*Equisetum arvense*	1:2	Herb	23%	15 to 40
J					
Jamaica Dogwood	*Piscidia piscipula*	1:2	Bark	60%	20 to 40
K					
Kava **S**	*Piper methysticum*, contains a minimum of 10 mg/mL kavalactones	1:1	Root	0%	42 to 84
Korean Ginseng **S**	*Panax ginseng*, contains 10.5 mg/mL ginsenosides with Rg1 & Rb1 greater than or equal to 0.4 by HPLC	1:2	Main root	60%	7 to 40
L					
Ladies Mantle	*Alchemilla vulgaris*	1:2	Herb	23%	25 to 50
Lavender	*Lavandula angustifolia*	1:2	Flower	60%	15 to 30
Lemon Balm	*Melissa officinalis*	1:2	Herb	45%	20 to 40
Licorice	*Glycyrrhiza glabra*	1:1	Root	20%	15 to 40
Licorice High Grade **QA**	*Glycyrrhiza glabra*, contains a minimum of 30 mg/mL glycyrrhizin	1:1	Root	20%	10 to 30
Lime Flowers	*Tilia cordata*	1:2	Flower	45%	15 to 30
M					
Marshmallow Root	*Althaea officinalis*	1:5	Root	23%	20 to 40
Marshmallow Root Glycetract	*Althaea officinalis*	1:5	Root	0%	20 to 40
Meadowsweet	*Filipendula ulmaria*	1:2	Herb	60%	20 to 40

Common Name	Botanical Name	Extract Ratio	Plant Part	Ethanol %	Weekly Dosage (mLs)
M					
Mexican Valerian	*Valeriana edulis*	1:2	Root and rhizome	45%	10 to 30
Mistletoe	*Viscum album*	1:2	Herb	45%	20 to 40
Motherwort	*Leonurus cardiaca*	1:2	Herb	23%	15 to 25
Mullein	*Verbascum thapsus*	1:2	Leaf	23%	30 to 60
Myrrh	*Commiphora myrrha*	1:5	Resin	90%	10 to 30
N					
Nettle Leaf	*Urtica dioica*	1:2	Leaf	23%	15 to 40
Nettle Root	*Urtica dioica*	1:2	Root	23%	30 to 60
Nigella	*Nigella sativa*	1:2	Seed	60%	28 to 84
O					
Oats Green	*Avena sativa*	1:2	Herb	23%	20 to 40
Oats Seed	*Avena sativa*	1:1	Seed	23%	20 to 40
Olive Leaves	*Olea europaea*	1:2	Leaf	45%	25 to 50
Oregon Grape	*Berberis aquifolium*	1:2	Root and rhizome	23%	25 to 50
P					
Paeonia	*Paeonia lactiflora*	1:2	Root	45%	30 to 60
Pasque Flower	*Anemone pulsatilla*	1:2	Herb	23%	3 to 10
Passionflower	*Passiflora incarnata*	1:2	Herb	45%	15 to 40
Pelargonium	*Pelargonium sidoides*	1:5	Root	20%	20 to 40
Peppermint **QA**	*Mentha* x *piperita*, contains a minimum of 1.2 mg/mL of menthol	1:2	Leaf	45%	10 to 30
Pleurisy Root	*Asclepias tuberosa*	1:2	Root	45%	10 to 20
Poke Root	*Phytolacca americana*	1:5	Root	45%	1 to 5
Prickly Ash	*Zanthoxylum clava-herculis*	1:2	Bark	45%	10 to 30
Propolis	N/A	1:5	Resin	90%	10 to 40
Q					
Qing Hao	*Artemisia annua*	1:2	Herb	45%	20 to 50
R					
Raspberry Leaves	*Rubus idaeus*	1:2	Leaf	23%	30 to 100
Red Clover Flowering Tops	*Trifolium pratense*	1:2	Flowering herb top	23%	10 to 40
Red Clover Flowers	*Trifolium pratense*	1:2	Flower	23%	10 to 40
Rehmannia	*Rehmannia glutinosa*	1:2	Root	23%	30 to 60
Rhodiola **S**	*Rhodiola rosea*, contains 3.0 mg/mL rosavins and 1.0 mg/mL salidroside	2:1	Root	45%	20 to 40
Ribwort	*Plantago lanceolata*	1:2	Leaf	23%	20 to 40
Rosemary **QA**	*Rosmarinus officinalis*, contains a minimum of 1.2 mg/mL of essential oil	1:2	Leaf	60%	15 to 30
S					
Saffron	*Crocus sativus*	1:20	Stigma	60%	10 to 25
Sage **QA**	*Salvia officinalis*, contains a minimum of 0.64 mg/mL of essential oil	1:2	Herb	60%	15 to 30
Sarsaparilla	*Smilax ornata*	1:2	Root and rhizome	45%	20 to 40

Common Name	Botanical Name	Extract Ratio	Plant Part	Ethanol %	Weekly Dosage (mLs)
S					
Saw Palmetto	*Serenoa repens*	1:2	Fruit	45%	15 to 30
Schisandra	*Schisandra chinensis*	1:2	Fruit	45%	25 to 60
Senna Pods	*Senna* spp.	1:2	Fruit	45%	10 to 40
Shatavari	*Asparagus racemosus*	1:2	Root	45%	30 to 60
Shepherd's Purse	*Capsella bursa-pastoris*	1:2	Herb	23%	20 to 40
Siberian Ginseng **S**	*Eleutherococcus senticosus*, contains 0.5 mg/mL eleutheroside E	1:2	Root	45%	15 to 55
Skullcap	*Scutellaria lateriflora*	1:2	Herb	45%	15 to 30
Squaw Vine	*Mitchella repens*	1:2	Whole plant	23%	20 to 40
St John's Wort **QA**	*Hypericum perforatum*, contains a minimum of 0.2 mg/mL hypericin	1:2	Flowering herb top	45%	15 to 40
St John's Wort High Grade **QA**	*Hypericum perforatum*, contains a minimum of 0.4 mg/mL hypericin	1:2	Flowering herb top	60%	15 to 40
St Mary's Thistle **QA**	*Silybum marianum*, contains a minimum of 19 mg/mL silymarin	1:1	Fruit	70%	30 to 60
St Mary's Thistle Glycetract **QA**	*Silybum marianum*, contains a minimum of 25 mg/mL silymarin	1:1	Fruit	<5%	30 to 60
Sundew	*Drosera longifolia*	1:5	Herb	60%	10 to 20
T					
Thuja	*Thuja occidentalis*	1:5	Leaf	60%	10 to 20
Thyme **QA**	*Thymus vulgaris*, contains a minimum of 2.4 mg/mL of thymol/carvacrol	1:2	Leaf	60%	15 to 40
Tienchi Ginseng	*Panax notoginseng*	1:2	Root	45%	25 to 60
Tribulus **S**	*Tribulus terrestris*, contains 30 mg/mL of furostanol saponins as protodioscin	2:1	Herb (Aerial parts)	60%	50 to 100
True Unicorn	*Aletris farinosa*	1:2	Root	45%	12 to 40
Turmeric	*Curcuma longa*	1:1	Rhizome	60%	35 to 100
V					
Valerian	*Valeriana officinalis*	1:2	Root	45%	15 to 40
Vervain	*Verbena officinalis*	1:2	Herb	23%	20 to 40
Violet Leaves	*Viola odorata*	1:2	Leaf	60%	12 to 25
W					
White Horehound	*Marrubium vulgare*	1:2	Herb	23%	15 to 40
Wild Cherry	*Prunus serotina*	1:2	Bark	23%	15 to 30
Wild Yam **QA**	*Dioscorea villosa*, contains a minimum of 15 mg/mL steroidal saponins	1:2	Root and rhizome	60%	20 to 40
Willow Bark	*Salix* spp.	1:2	Bark	45%	25 to 50
Willow Herb	*Epilobium parviflorum*	1:2	Herb	23%	20 to 40
Withania **S**	*Withania somnifera*, contains a minimum of 4.0 mg/mL of withanolides	2:1	Root	45%	10 to 30
Wood Betony	*Stachys officinalis*	1:2	Herb	45%	15 to 30
Wormwood	*Artemisia absinthium*	1:5	Herb	45%	5 to 20
Y					
Yarrow	*Achillea millefolium*	1:2	Herb	45%	15 to 40
Yellow Dock	*Rumex crispus*	1:2	Root	23%	15 to 30
Z					
Zizyphus	*Ziziphus jujuba* var. *spinosa*	1:2	Seed	23%	40 to 80

QA = Quantified Activity **S** = Standardised

Action Listing by Herbs

Herbal Liquid	Action
A	
Adhatoda 1:2	expectorant, antispasmodic, bronchodilator (mild)
Agrimony 1:2	astringent (mild), diuretic
Albizia 1:2	antiallergic, depurative
Aloes Resin 1:10	stimulant laxative
Andrographis 1:2	bitter tonic, liver tonic, diaphoretic, immune enhancing
Arnica 1:5	topically only: anti-ecchymotic (against bruises), anti-inflammatory, analgesic
Astragalus 1:2	tonic, immune enhancing
B	
Bacopa 1:2	nervine
Baical Skullcap 1:2	anti-inflammatory, bitter
Baptisia 1:2	antiseptic, antipyretic, immune enhancing, depurative
Barberry 1:2	cholagogue, bitter tonic
Bearberry 1:2	urinary antiseptic, astringent
Beth Root 1:2	astringent, haemostatic, expectorant (mild)
Bilberry 1:1	astringent
Black Cohosh 1:2	female tonic, antispasmodic, anti-inflammatory
Black Walnut Hulls 1:10	anthelmintic
Bladderwrack 1:1	thyroid tonic
Blue Cohosh 1:2	uterine tonic, antispasmodic
Blue Flag 1:2	depurative, cholagogue, lymphatic
Buchu 1:2	urinary antiseptic, diuretic (mild)
Bugleweed 1:2	thyroid tonic
Bupleurum 1:2	anti-inflammatory, liver tonic, diaphoretic, antitussive
Burdock 1:2	depurative, diuretic (mild)
Butcher's Broom 1:2	venotonic, anti-inflammatory, diuretic
Butternut 1:2	laxative, cholagogue, depurative
C	
Calendula 1:2	vulnerary, anti-inflammatory, lymphatic, antiseptic, styptic
Calendula 1:2 (low alcohol)	vulnerary, anti-inflammatory, lymphatic, antiseptic, styptic
Californian Poppy 1:2	sedative (mild), analgesic
Cascara 1:2	laxative
Cat's Claw 1:2	tonic, anti-inflammatory, immune enhancing
Cayenne 1:3	pungent, circulatory stimulant, carminative, diaphoretic, rubifacient
Celery Seed 1:2	diuretic, anti-inflammatory
Chamomile 1:2	carminative, antispasmodic, sedative (mild), anti-inflammatory
Chamomile High Grade 1:2	carminative, antispasmodic, sedative (mild), anti-inflammatory
Chaste Tree 1:2	hormonal modulator, uterine tonic, galactagogue
Chen Pi 1:2	carminative, stomachic, expectorant
Cinnamon Quills 1:2	carminative, antispasmodic, warming (mild circulatory stimulant), antimicrobial
Clivers 1:2	diuretic, depurative
Codonopsis 1:2	tonic
Coleus 1:1	depurative, diuretic
Corn Silk 1:1	demulcent, diuretic (mild), antilithic,
Corydalis 1:2	analgesic, circulatory stimulant
Couch Grass 1:1	soothing diuretic, urinary demulcent
Cramp Bark 1:2	antispasmodic, sedative (mild)
Crataeva 1:2	antilithic, bladder tonic, anti-inflammatory
D	
Damiana 1:2	nervine tonic, general tonic, thymoleptic
Dan Shen 1:2	circulatory stimulant, sedative
Dandelion Leaves 1:1	diuretic, bitter tonic, choleretic
Dandelion Root 1:2	bitter tonic, choleretic, cholagogue, laxative (mild)
Devil's Claw 1:2	anti-inflammatory, analgesic, bitter tonic
Dong Quai 1:2	female tonic, laxative (mild), blood building, analgesic
E	
Echinacea Angustifolia Root 1:2	depurative, lymphatic, immune stimulating, vulnerary, antiseptic
Echinacea Premium Blend	depurative, lymphatic, immune stimulating, vulnerary, antiseptic
Echinacea Purpurea Root 1:2	depurative, lymphatic, immune stimulating, vulnerary, antiseptic
Echinacea Purpurea Glycetract 1:3	depurative, lymphatic, immune stimulating, vulnerary, antiseptic
Echinacea Regular Blend	depurative, lymphatic, immune stimulating, vulnerary, antiseptic
Elder Flowers 1:2	diaphoretic, anticatarrhal
Elecampane 1:2	expectorant, diaphoretic, antispasmodic
Euphorbia 1:2	expectorant, antispasmodic, bronchodilator (mild)
Eyebright 1:2	anticatarrhal, astringent, mucous membrane tonic, anti-inflammatory (topically)
F	
False Unicorn 1:2	uterine tonic, ovarian tonic
Fennel 1:2	carminative, antispasmodic, expectorant, galactagogue, antimicrobial
Fenugreek 1:2	tonic
Feverfew 1:5	anti-inflammatory, bitter tonic
Fringe Tree 1:2	cholagogue, liver tonic
G	
Gentian 1:2	bitter tonic, gastric stimulant

Herbal Liquid	Action
Ginger 1:2	carminative, diaphoretic, antispasmodic, circulatory stimulant, expectorant
Ginkgo Biloba 2:1	circulatory stimulant, tissue perfusion enhancing, cognition enhancing, antioxidant
Globe Artichoke 1:2	liver tonic, bitter tonic, cholagogue
Goat's Rue 1:2	galactagogue, diuretic, diaphoretic
Golden Rod 1:2	anticatarrhal, anti-inflammatory, diuretic, diaphoretic, antiseptic
Golden Seal 1:3 (Cultivated)	anticatarrhal, mucous membrane trophorestorative, bitter tonic, haemostatic, anti-inflammatory, depurative
Golden Seal 1:5 (Cultivated)	anticatarrhal, mucous membrane trophorestorative, bitter tonic, haemostatic, anti-inflammatory, depurative
Gotu Kola 1:1	depurative, peripheral vasodilator, brain tonic, anti-inflammatory, vulnerary
Gravel Root 1:2	diuretic, antilithic
Greater Celandine 1:2	cholagogue, choleretic, antispasmodic
Grindelia 1:2	expectorant, antispasmodic
Gymnema 1:1	tonic
H	
Hawthorn Berries 1:2	cardiotonic, vasodilator, astringent
Hawthorn Leaves 1:2	cardiotonic
Hemidesmus 1:2	depurative, diaphoretic, tonic
Hops 1:2	sedative (mild), bitter tonic
Horsechestnut 1:2	venotonic, anti-inflammatory, antiecchymotic (against bruises)
Horseradish 1:2	anti-catarrhal, mucolytic, warming (circulatory stimulant), antimicrobial
Horsetail 1:2	diuretic, astringent
J	
Jamaica Dogwood 1:2	analgesic, antispasmodic, sedative
K	
Kava 1:1	sedative (mild), antispasmodic, analgesic (mild), local anaesthetic
Korean Ginseng 1:2	adaptogen, tonic, immune enhancing, cardiotonic
L	
Ladies Mantle 1:2	astringent, haemostatic
Lavender 1:2	carminative, antispasmodic, thymoleptic, sedative (mild)
Lemon Balm 1:2	carminative, sedative (mild), antispasmodic, diaphoretic
Licorice 1:1	expectorant, demulcent, adrenal tonic, anti-inflammatory
Licorice High Grade 1:1	expectorant, demulcent, adrenal tonic, anti-inflammatory
Lime Flowers 1:2	peripheral vasodilator, antispasmodic, diaphoretic, sedative (mild)
M	
Marshmallow Root 1:5	demulcent, emollient
Marshmallow Root Glycetract 1:5	demulcent, emollient
Meadowsweet 1:2	anti-inflammatory, astringent
Mexican Valerian 1:2	sedative (mild), anxiolytic
Mistletoe 1:2	cardiotonic, sedative (mild)
Motherwort 1:2	nervine, cardiotonic, antispasmodic, thyroid tonic (mild)
Mullein 1:2	expectorant, demulcent, anticatarrhal
Myrrh 1:5	astringent, antiseptic, anti-inflammatory, expectorant, vulnerary
N	
Nettle Leaf 1:2	depurative, haemostatic, diuretic
Nettle Root 1:2	antiprostatic
Nigella 1:2	aromatic digestive, carminative, diaphoretic, anthelmintic
O	
Oats Green 1:2	nervine tonic, sedative (mild)
Oats Seed 1:1	nervine tonic, thymoleptic
Olive Leaves 1:2	astringent, febrifuge
Oregon Grape 1:2	depurative, cholagogue (mild), tonic
P	
Paeonia 1:2	antispasmodic, skeletal muscle relaxant (mild), analgesic, antihidrotic
Pasque Flower 1:2	antispasmodic, sedative (mild), analgesic (mild)
Passionflower 1:2	sedative (mild), anxiolytic, antispasmodic
Pelargonium 1:5	antibacterial, immune enhancing
Peppermint 1:2	antispasmodic, carminative, diaphoretic
Pleurisy Root 1:2	diaphoretic, expectorant, antispasmodic
Poke Root 1:5	lymphatic, depurative, anticatarrhal
Prickly Ash 1:2	circulatory stimulant, diaphoretic
Propolis 1:5	antiseptic, local anaesthetic, antiviral, vulnerary, immune modulating
Q	
Qing Hao 1:2	bitter tonic, febrifuge, antiparasitic
R	
Raspberry Leaves 1:2	uterine tonic, astringent
Red Clover Flower 1:2	depurative, expectorant
Red Clover Flowering Tops 1:2	depurative, expectorant
Rehmannia 1:2	haemostatic, diaphoretic, anti-inflammatory
Rhodiola 2:1	adaptogen
Ribwort 1:2	anti-catarrhal, demulcent, astringent, antibacterial
Rosemary 1:2	carminative, antispasmodic, thymoleptic, circulatory stimulant
Saffron 1:20	nervine tonic, antispasmodic, diaphoretic (mild)

Herbal Liquid	Action
Sage 1:2	anti-inflammatory, astringent, antiseptic
Sarsaparilla 1:2	depurative, anti-inflammatory, tonic
Saw Palmetto 1:2	antispasmodic, tonic, anti-inflammatory, diuretic
Schisandra 1:2	tonic, sedative, astringent, adaptogen, antitussive
Senna Pods 1:2	stimulating laxative
Shatavari 1:2	female sexual tonic, general tonic, galactagogue, antispasmodic
Shepherd's Purse 1:2	haemostatic
Siberian Ginseng 1:2	adaptogen, tonic
Skullcap 1:2	nervine tonic, sedative (mild)
Squaw Vine 1:2	uterine tonic, astringent
St John's Wort 1:2	nervine, sedative, astringent
St John's Wort High Grade 1:2	nervine, sedative, astringent
St Mary's Thistle 1:1	liver tonic, hepatoprotective, bitter tonic
St Mary's Thistle Glycetract 1:1	liver tonic, hepatoprotective, bitter tonic
Sundew 1:5	antispasmodic, antitussive, demulcent, expectorant
T	
Thuja 1:5	antimicrobial, expectorant, depurative
Thyme 1:2	expectorant, antispasmodic, antitussive, antibacterial, carminative
Tienchi Ginseng 1:2	haemostatic, anti-inflammatory
Tribulus 2:1	tonic, hormonal modulator
True Unicorn Root 1:2	bitter tonic, antispasmodic, sedative (mild)
Turmeric 1:1	carminative, depurative, choleretic
V	
Valerian 1:2	sedative (mild), anxiolytic, antispasmodic
Vervain 1:2	nervine tonic, diaphoretic (mild), galactagogue
Violet Leaves 1:2	expectorant, depurative
W	
White Horehound 1:2	expectorant, antispasmodic, bitter tonic
Wild Cherry 1:2	antitussive
Wild Yam 1:2	antispasmodic, anti-inflammatory
Willow Bark 1:2	anti-inflammatory, analgesic, antipyretic, astringent
Willow Herb 1:2	prostate tonic
Withania 2:1	tonic, adaptogen, sedative (mild)
Wood Betony 1:2	sedative (mild), nervine, bitter tonic
Wormwood 1:5	bitter tonic, anthelmintic
Y	
Yarrow 1:2	diaphoretic, peripheral vasodilator, bitter tonic, haemostatic
Yellow Dock 1:2	laxative (mild), cholagogue, depurative
Z	
Zizyphus 1:2	sedative (mild), anxiolytic, antihidrotic

Herb Listing by Action

Action	Herbal Liquid
A	
adaptogen	Korean Ginseng 1:2, Rhodiola 2:1, Schisandra 1:2, Siberian Ginseng 1:2, Withania 2:1
adrenal tonic	Licorice 1:1, Licorice High Grade 1:1
analgesic	Arnica 1:5 (topical use only), Californian Poppy 1:2, Corydalis 1:2, Devil's Claw 1:2, Dong Quai 1:2, Jamaica Dogwood 1:2, Kava 1:1 (mild), Paeonia 1:2, Pasque Flower 1:2 (mild), Willow Bark 1:2
anthelmintic	Black Walnut Hulls 1:10, Nigella 1:2, Wormwood 1:5
antiallergic	Albizia 1:2
antibacterial	Pelargonium 1:5, Ribwort 1:2, Thyme 1:2
anticatarrhal	Elder Flowers 1:2, Eyebright 1:2, Golden Rod 1:2, Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated), Horseradish 1:2, Mullein 1:2, Poke Root 1:5, Ribwort 1:2
antiecchymotic	Arnica 1:5 (topical use only), Horsechestnut 1:2
antihidrotic	Paeonia 1:2, Zizyphus 1:2
anti-inflammatory	Arnica 1:5 (topical use only), Baical Skullcap 1:2, Black Cohosh 1:2, Bupleurum 1:2, Butcher's Broom 1:2, Calendula 1:2, Calendula 1:2 (low alcohol), Cat's Claw 1:2, Celery Seed 1:2, Chamomile 1:2, Chamomile High Grade 1:2, Crataeva 1:2, Devil's Claw 1:2, Eyebright 1:2 (topically), Feverfew 1:5, Golden Rod 1:2, Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated), Gotu Kola 1:1, Horsechestnut 1:2, Licorice 1:1, Licorice High Grade 1:1, Meadowsweet 1:2, Myrrh 1:5, Rehmannia 1:2, Sage 1:2, Sarsaparilla 1:2, Saw Palmetto 1:2, Tienchi Ginseng 1:2, Wild Yam 1:2, Willow Bark 1:2
antilithic	Corn Silk 1:1, Crataeva 1:2, Gravel Root 1:2
antimicrobial	Cinnamon Quills 1:2, Fennel 1:2, Horseradish 1:2, Thuja 1:5
antioxidant	Ginkgo Biloba 2:1
antiparasitic	Qing Hao 1:2
antiprostatic	Nettle Root 1:2
antipyretic	Baptisia 1:2, Willow Bark 1:2
antiseptic	Baptisia 1:2, Calendula 1:2, Calendula 1:2 (low alcohol), Echinacea Angustifolia Root 1:2, Echinacea Premium Blend, Echinacea Purpurea Glycetract 1:3, Echinacea Purpurea Root 1:2, Echinacea Regular Blend, Golden Rod 1:2, Myrrh 1:5, Propolis 1:5, Sage 1:2
antispasmodic	Adhatoda 1:2, Black Cohosh 1:2, Blue Cohosh 1:2, Chamomile 1:2, Chamomile High Grade 1:2, Cinnamon Quills 1:2, Cramp Bark 1:2, Elecampane 1:2, Euphorbia 1:2, Fennel 1:2, Ginger 1:2, Greater Celandine 1:2, Grindelia 1:2, Jamaica Dogwood 1:2, Kava 1:1, Lavender 1:2, Lemon Balm 1:2, Lime Flowers 1:2, Motherwort 1:2, Paeonia 1:2, Pasque Flower 1:2, Passionflower 1:2, Peppermint 1:2, Pleurisy Root 1:2, Rosemary 1:2, Saffron 1:20, Saw Palmetto 1:2, Shatavari 1:2, Sundew 1:5, Thyme 1:2, True Unicorn Root 1:2, Valerian 1:2, White Horehound 1:2, Wild Yam 1:2
antitussive	Bupleurum 1:2, Schisandra 1:2, Sundew 1:5, Thyme 1:2, Wild Cherry 1:2
antiviral	Propolis 1:5
anxiolytic	Mexican Valerian 1:2, Passionflower 1:2, Valerian 1:2, Zizyphus 1:2
aromatic digestive	Nigella 1:2
astringent	Agrimony 1:2 (mild), Bearberry 1:2, Beth Root 1:2, Bilberry 1:1, Eyebright 1:2, Hawthorn Berries 1:2, Horsetail 1:2, Ladies Mantle 1:2, Meadowsweet 1:2, Myrrh 1:5, Olive Leaves 1:2, Raspberry Leaves 1:2, Ribwort 1:2, Sage 1:2, Schisandra 1:2, Squaw Vine 1:2, St John's Wort 1:2, St John's Wort High Grade 1:2, Willow Bark 1:2
B	
bitter tonic	Andrographis 1:2, Baical Skullcap 1:2, Barberry 1:2, Dandelion Leaves 1:1, Dandelion Root 1:2, Devil's Claw 1:2, Feverfew 1:5, Gentian 1:2, Globe Artichoke 1:2, Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated), Hops 1:2, Qing Hao 1:2, St Mary's Thistle 1:1, St Mary's Thistle Glycetract 1:1, True Unicorn Root 1:2, White Horehound 1:2, Wood Betony 1:2, Wormwood 1:5, Yarrow 1:2
bladder tonic	Crataeva 1:2
blood building	Dong Quai 1:2
brain tonic	Gotu Kola 1:1
bronchodilator (mild)	Adhatoda 1:2, Euphorbia 1:2
C	
cardiotonic	Hawthorn Berries 1:2, Hawthorn Leaves 1:2, Korean Ginseng 1:2, Mistletoe 1:2, Motherwort 1:2
carminative	Cayenne 1:3, Chamomile 1:2, Chamomile High Grade 1:2, Chen Pi 1:2, Cinnamon Quills 1:2, Fennel 1:2, Ginger 1:2, Lavender 1:2, Lemon Balm 1:2, Nigella 1:2, Peppermint 1:2, Rosemary 1:2, Thyme 1:2, Turmeric 1:1

Action	Herbal Liquid
cholagogue	Barberry 1:2, Blue Flag 1:2, Butternut 1:2, Dandelion Root 1:2, Fringe Tree 1:2, Globe Artichoke 1:2, Greater Celandine 1:2, Oregon Grape 1:2 (mild), Yellow Dock 1:2
choleretic	Dandelion Leaves 1:1, Dandelion Root 1:2, Greater Celandine 1:2, Turmeric 1:1
circulatory stimulant	Cayenne 1:3, Corydalis 1:2, Dan Shen 1:2, Ginger 1:2, Ginkgo Biloba 2:1, Prickly Ash 1:2, Rosemary 1:2
cognition enhancing	Ginkgo Biloba 2:1
D	
demulcent	Corn Silk 1:1, Licorice 1:1, Licorice High Grade 1:1, Marshmallow Root 1:5, Marshmallow Root Glycetract 1:5, Mullein 1:2, Ribwort 1:2, Sundew 1:5
depurative	Albizia 1:2, Baptisia 1:2, Blue Flag 1:2, Burdock 1:2, Butternut 1:2, Clivers 1:2, Coleus 1:1, Echinacea Angustifolia Root 1:2, Echinacea Premium Blend, Echinacea Purpurea Glycetract 1:3, Echinacea Purpurea Root 1:2, Echinacea Regular Blend, Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated), Gotu Kola 1:1, Hemidesmus 1:2, Nettle Leaf 1:2, Oregon Grape 1:2, Poke Root 1:5, Red Clover Flower 1:2, Red Clover Flowering Tops 1:2, Sarsaparilla 1:2, Thuja 1:5, Turmeric 1:1, Violet Leaves 1:2, Yellow Dock 1:2
diaphoretic	Andrographis 1:2, Bupleurum 1:2, Cayenne 1:3, Elder Flowers 1:2, Elecampane 1:2, Ginger 1:2, Goat's Rue 1:2, Golden Rod 1:2, Hemidesmus 1:2, Lemon Balm 1:2, Lime Flowers 1:2, Nigella 1:2, Peppermint 1:2, Pleurisy Root 1:2, Prickly Ash 1:2, Rehmannia 1:2, Saffron 1:20 (mild), Vervain 1:2 (mild), Yarrow 1:2
diuretic	Agrimony 1:2, Buchu 1:2 (mild), Burdock 1:2 (mild), Butcher's Broom 1:2, Celery Seed 1:2, Clivers 1:2, Coleus 1:1, Corn Silk 1:1 (mild), Dandelion Leaves 1:1, Goat's Rue 1:2, Golden Rod 1:2, Gravel Root 1:2, Horsetail 1:2, Nettle Leaf 1:2, Saw Palmetto 1:2
E	
emollient	Marshmallow Root 1:5, Marshmallow Root Glycetract 1:5
expectorant	Adhatoda 1:2, Beth Root 1:2 (mild), Chen Pi 1:2, Elecampane 1:2, Euphorbia 1:2, Fennel 1:2, Ginger 1:2, Grindelia 1:2, Licorice 1:1, Licorice High Grade 1:1, Mullein 1:2, Myrrh 1:5, Pleurisy Root 1:2, Red Clover Flower 1:2, Red Clover Flowering Tops 1:2, Sundew 1:5, Thuja 1:5, Thyme 1:2, Violet Leaves 1:2, White Horehound 1:2
F	
febrifuge	Olive Leaves 1:2, Qing Hao 1:2
female sexual tonic	Shatavari 1:2
female tonic	Black Cohosh 1:2, Dong Quai 1:2
G	
galactagogue	Chaste Tree 1:2, Fennel 1:2, Goat's Rue 1:2, Shatavari 1:2, Vervain 1:2
gastric stimulant	Gentian 1:2
general tonic	Damiana 1:2, Shatavari 1:2
H	
haemostatic	Beth Root 1:2, Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated), Ladies Mantle 1:2, Nettle Leaf 1:2, Rehmannia 1:2, Shepherd's Purse 1:2, Tienchi Ginseng 1:2, Yarrow 1:2
hepatoprotective	St Mary's Thistle 1:1, St Mary's Thistle Glycetract 1:1
hormonal modulator	Chaste Tree 1:2, Tribulus 2:1
I	
immune enhancing/ stimulating	Andrographis 1:2, Astragalus 1:2, Baptisia 1:2, Cat's Claw 1:2, Echinacea Angustifolia Root 1:2, Echinacea Premium Blend, Echinacea Purpurea Glycetract 1:3, Echinacea Purpurea Root 1:2, Echinacea Regular Blend, Korean Ginseng 1:2, Pelargonium 1:5
immune modulating	Propolis 1:5
L	
laxative	Aloes Resin 1:10 (stimulant), Butternut 1:2, Cascara 1:2, Dandelion Root 1:2 (mild), Dong Quai 1:2 (mild), Senna Pods 1:2 (stimulant), Yellow Dock 1:2 (mild)
liver tonic	Andrographis 1:2, Bupleurum 1:2, Fringe Tree 1:2, Globe Artichoke 1:2, St Mary's Thistle 1:1, St Mary's Thistle Glycetract 1:1
local anaesthetic	Kava 1:1, Propolis 1:5
lymphatic	Blue Flag 1:2, Calendula 1:2, Calendula 1:2 (low alcohol), Echinacea Angustifolia Root 1:2, Echinacea Premium Blend, Echinacea Purpurea Root 1:2, Echinacea Purpurea Glycetract 1:3, Echinacea Regular Blend, Poke Root 1:5
M	
mucolytic	Horseradish 1:2

Action	Herbal Liquid
mucous membrane tonic	Eyebright 1:2
mucous membrane trophorestorative	Golden Seal 1:3 (Cultivated), Golden Seal 1:5 (Cultivated)
N	
nerve tonic	Bacopa 1:2, Damiana 1:2, Motherwort 1:2, Oats Green 1:2, Oats Seed 1:1, Saffron 1:20, Skullcap 1:2, St John's Wort 1:2, St John's Wort High Grade 1:2, Vervain 1:2, Wood Betony 1:2
O	
ovarian tonic	False Unicorn 1:2
P	
peripheral vasodilator	Gotu Kola 1:1, Lime Flowers 1:2, Yarrow 1:2
prostate tonic	Willow Herb 1:2
pungent	Cayenne 1:3
R	
rubifacient	Cayenne 1:3
S	
sedative	Californian Poppy 1:2 (mild), Chamomile 1:2, Chamomile High Grade 1:2 (mild), Cramp Bark 1:2 (mild), Dan Shen 1:2, Hops 1:2 (mild), Jamaica Dogwood 1:2, Kava 1:1 (mild), Lavender 1:2 (mild), Lemon Balm 1:2 (mild), Lime Flowers 1:2 (mild), Mexican Valerian 1:2 (mild), Mistletoe 1:2 (mild), Oats Green 1:2 (mild), Pasque Flower 1:2 (mild), Passionflower 1:2 (mild), Schisandra 1:2, Skullcap 1:2 (mild), St John's Wort 1:2, St John's Wort High Grade 1:2, True Unicorn Root 1:2 (mild), Valerian 1:2 (mild), Withania 2:1 (mild), Wood Betony 1:2 (mild), Zizyphus 1:2 (mild)
skeletal muscle relaxant	Paeonia 1:2 (mild)
soothing diuretic	Couch Grass 1:1
stomachic	Chen Pi 1:2
styptic	Calendula 1:2, Calendula 1:2 (low alcohol)
T	
thymoleptic	Damiana 1:2, Lavender 1:2, Oats Seed 1:1, Rosemary 1:2
thyroid tonic	Bladderwrack 1:1, Bugleweed 1:2, Motherwort 1:2 (mild)
tissue perfusion enhancing	Ginkgo Biloba 2:1
tonic	Astragalus 1:2, Cat's Claw 1:2, Codonopsis 1:2, Fenugreek 1:2, Gymnema 1:1, Hemidesmus 1:2, Korean Ginseng 1:2, Oregon Grape 1:2, Sarsaparilla 1:2, Saw Palmetto 1:2, Schisandra 1:2, Siberian Ginseng 1:2, Tribulus 2:1, Withania 2:1
U	
urinary antiseptic	Bearberry 1:2, Buchu 1:2
urinary demulcent	Couch Grass 1:1
uterine tonic	Blue Cohosh 1:2, Chaste Tree 1:2, False Unicorn 1:2, Raspberry Leaves 1:2, Squaw Vine 1:2
V	
vasodilator	Hawthorn Berries 1:2
venotonic	Butcher's Broom 1:2, Horsechestnut 1:2
vulnerary	Calendula 1:2, Calendula 1:2 (low alcohol), Echinacea Angustifolia Root 1:2, Echinacea Premium Blend, Echinacea Purpurea Glycetract 1:3, Echinacea Purpurea Root 1:2, Echinacea Regular Blend, Gotu Kola 1:1, Myrrh 1:5, Propolis 1:5
W	
warming (circulatory stimulant)	Cinnamon Quills 1:2 (mild), Horseradish 1:2

Glossary of Herbal Actions

Adaptogenic	A substance which increases the body's resistance to physical, environmental, emotional or biological stressors and promotes normal physiological function.
Adrenal tonic	A substance which improves the tone, histology and function of the adrenal glands (especially the cortex).
Alterative	*See Depurative*
Analgesic	A substance which relieves pain.
Anthelmintic	A substance which kills or assists in the expulsion of intestinal worms.
Antiallergic	A substance which tones down the allergic response, often by stabilizing mast cells.
Antianaemic	A substance which prevents or helps correct anaemia.
Antibacterial	A substance which inhibits the growth of bacteria (bacteriostatic) or destroys bacteria (bactericidal).
Anticatarrhal	A substance which reduces the formation of catarrh or phlegm (pathological mucous secretion).
Antiecchymotic	A substance which prevents or alleviates bruising.
Antihidrotic	A substance which reduces excessive sweating.
Anti-inflammatory	A substance which reduces inflammation.
Antilithic	A substance which reduces the formation of calculi (stones) in the urinary tract.
Antimicrobial *(see also Antibacterial)*	A substance which inhibits the growth of or destroys microorganisms.
Antioxidant	A substance which protects against oxidation and free radical damage.
Antiparasitic	A substance which inhibits the activity of or kills parasites.
Antiprostatic	A substance which reduces symptoms from the prostate gland.
Antipyretic	A substance which reduces or prevents fever.
Antiseptic	*See Antimicrobial*
Antispasmodic	A substance which reduces or relieves smooth muscle spasm (involuntary contractions).
Antitussive	A substance which reduces the amount or severity of coughing.
Antiviral	A substance that inhibits the growth of viruses.
Anxiolytic	A substance which alleviates anxiety.
Aromatic digestive	A substance which is generally pleasant tasting and/or smelling which assists digestion. They are warming to the body and are also known as warming digestive tonics.
Astringent	A substance which causes constriction of mucous membranes and exposed tissues, usually by precipitating proteins. This has the effect of producing a barrier on the mucus or exposed surfaces.
Bitter tonic *(also known as a Bitter; see also Gastric stimulant)*	A substance which is bitter tasting and stimulates the upper gastrointestinal tract via the bitter-sensitive taste buds of the mouth and/or by direct interaction with gastrointestinal tissue. Bitters have a promoting effect on all components of upper digestive function, namely the stomach, liver and pancreas. In addition to appetite and digestion they improve general health and immune function.
Bladder tonic	A substance which improves the tone and function of the bladder.
Blood building	Traditional Chinese Medicine concept – See Antianaemic
Bronchodilator	A substance which opens bronchial air passages.
Cardiotonic	A substance which improves the force of contraction of the heart.
Carminative	A substance which relieves flatulence and soothes intestinal spasm and pain, usually by relaxing intestinal muscle and sphincters. They are added to herbal formulations to ease the intestinal spasm or pain which may be caused by laxative herbs.
Cholagogue	A substance which increases the release of stored bile from the gallbladder.
Choleretic	A substance which increases the production of bile by the liver.
Circulatory stimulant	A substance which improves blood flow through body tissues. Circulatory stimulants are warming and they support vitality in the body tissues.
Cognition enhancing	A substance which facilitates learning or memory.
Demulcent	A substance which has a soothing effect on mucous membranes, for example, within the respiratory, digestive and urinary tracts.
Depurative	A substance which improves detoxification and aids elimination to reduce the accumulation of metabolic waste products within the body. They were formerly known as alteratives or blood purifiers and are largely used to treat chronic skin and musculoskeletal disorders.
Diaphoretic	A substance which promotes sweating and thereby controls a fever. They are also known as sudorifics.
Diuretic	A substance which increases urinary output.
Emollient	A substance used to soothe, soften or protect skin.

Expectorant	A substance which improves the clearing of excess mucus from the lungs by either altering the viscosity of mucus or improving the cough reflex.
Febrifuge	*See Antipyretic*
Female tonic	A substance which improves the tone, vigor and function of the female reproductive system.
Galactagogue	A substance which increases breast milk production.
Gastric stimulant *(see also Bitter tonic)*	A substance which stimulates the function of the stomach.
General tonic	*See Tonic*
Haemostatic	*See Styptic*
Hepatoprotective	A substance which protects the hepatocytes (liver cells) against toxic damage.
Hormone modulator	A substance which modulates and balances hormone levels.
Immune enhancing/stimulanting	A substance which enhances immune function.
Immune modulating	A substance which modulates and balances the activity of the immune system.
Laxative	A substance which facilitates evacuation of the bowel.
Liver tonic	A substance which improves the tone, vigor and function of the liver.
local anaesthetic	A substance that removes sensation or pain when applied locally (topically).
Lymphatic	A substance which assists detoxification by its effect on lymphatic tissue and often also improves immune function.
Mucolytic	A substance which helps break up and disperse sticky mucus in the respiratory tract.
Mucous membrane tonic	A substance which improves the tone, vigor and function of the mucous membranes (particularly of the respiratory tract).
Mucous membrane trophorestorative	A substance which restores the integrity of mucous membranes, e.g. in the respiratory and digestive tracts.
Nervine tonic *(Nervine)*	A substance which improves the tone, vigor and function of the nervous system. Nervine tonics relax and energize the nervous system.
Ovarian tonic	A substance which improves the tone, vigor and function of the ovaries.
Peripheral vasodilator	A substance which dilates or widens the peripheral blood vessels and thereby improves circulation to peripheral tissues and may assist in reducing blood pressure.
Prostate tonic	A substance which improves the tone, vigor and function of the prostate.
Pungent	A hot-tasting substance which acts upon a common group of nerve cell receptors having the effect of warming the body and improving digestion and circulation.
Rubefacient	*See Counterirritant*
Sedative (mild)	A substance which reduces activity, particularly in the nervous system and decreases nervous tension. It may alleviate pain and spasm and induce sleep.
Sexual tonic	A substance which improves the tone, vigor and function of the sexual organs.
Sialagogue	A substance which increases the secretion of the salivary glands.
Skeletal muscle relaxant	A substance which relaxes skeletal muscle tone.
Stimulant	A substance which heightens the function of an organ or system e.g. a central nervous stimulant increases the activity of the central nervous system, particularly behavioral alertness, agitation, or excitation. The term has a second, more subtle meaning derived from the Thomsonian system (an early branch of herbal therapy in the USA): a substance capable of increasing the action or energy of the living body.
Stomachic	*See Gastric stimulant*
Styptic	A substance which stops bleeding when applied locally.
Thymoleptic	A substance which elevates mood.
Thyroid tonic	A substance which improves the tone, vigor and function of the thyroid.
Tissue perfusion enhancing	A substance which enhances the flow of nutrients into a tissue.
Tonic *(also known as General tonic; see also other specific body tonics)*	A substance which improves the tone, vigor and function of the whole body.
Urinary antiseptic	A substance which inhibits the growth of or destroys microorganisms within the urinary tract.
Urinary demulcent	A substance which has a soothing effect on mucous membranes of the urinary tract.
Uterine tonic	A substance which increases the tone of the uterine muscle.
Vasodilator	A substance which dilates or widens the blood vessels.
Venotonic	A substance which improves the tone and function of the veins.
Vulnerary	A substance which promotes the healing of wounds when applied locally.

Pregnancy Cautions

Herbal Liquid	Pregnancy	Lactation
A		
Adhatoda 1:2	√ contraindicated	professional supervision
Agrimony 1:2	professional supervision	professional supervision
Albizia 1:2	professional supervision	professional supervision
Aloes Resin 1:10	√ caution	√ caution
Andrographis 1:2	√ avoid in early pregnancy	professional supervision
Arnica 1:5	*external use only*	*external use only*
Astragalus 1:2	professional supervision	professional supervision
B		
Bacopa 1:2	professional supervision	professional supervision
Baical Skullcap 1:2	professional supervision	professional supervision
Baptisia 1:2	professional supervision	professional supervision
Barberry 1:2	√ contraindicated	√ contraindicated
Bearberry 1:2	professional supervision	professional supervision
Beth Root 1:2	professional supervision	professional supervision
Bilberry 1:1	professional supervision	professional supervision
Black Cohosh 1:2	professional supervision	√ contraindicated
Black Walnut Hulls 1:10	professional supervision	professional supervision
Bladderwrack 1:1	professional supervision	√ caution
Blue Cohosh 1:2	√ contraindicated	√ contraindicated
Blue Flag 1:2	professional supervision	professional supervision
Buchu 1:2	professional supervision	√ caution
Bugleweed 1:2	√ contraindicated	√ contraindicated
Bupleurum 1:2	professional supervision	professional supervision
Burdock 1:2	professional supervision	professional supervision
Butcher's Broom 1:2	professional supervision	professional supervision
Butternut 1:2	professional supervision	professional supervision
C		
Calendula 1:2	professional supervision	professional supervision
Calendula 1:2 (low alcohol)	professional supervision	professional supervision
Californian Poppy 1:2	professional supervision	professional supervision
Cascara 1:2	professional supervision	√ caution
Cat's Claw 1:2	√ contraindicated	√ caution
Cayenne 1:3	professional supervision	professional supervision
Celery Seed 1:2	professional supervision	√ caution
Chamomile 1:2	professional supervision	professional supervision
Chamomile High Grade 1:2	professional supervision	professional supervision
Chaste Tree 1:2	professional supervision	professional supervision
Chen Pi 1:2	professional supervision	professional supervision
Cinnamon Quills 1:2	√ caution	professional supervision
Clivers 1:2	professional supervision	professional supervision
Codonopsis 1:2	professional supervision	professional supervision
Coleus 1:1	professional supervision	professional supervision

Herbal Liquid	Pregnancy	Lactation
Corn Silk 1:1	professional supervision	professional supervision
Corydalis 1:2	√ contraindicated	√ caution
Couch Grass 1:1	professional supervision	professional supervision
Cramp Bark 1:2	professional supervision	professional supervision
Crataeva 1:2	√ caution	√ caution
D		
Damiana 1:2	professional supervision	professional supervision
Dan Shen 1:2	√ contraindicated	professional supervision
Dandelion Leaves 1:1	professional supervision	professional supervision
Dandelion Root 1:2	professional supervision	professional supervision
Devil's Claw 1:2	professional supervision	professional supervision
Dong Quai 1:2	√ contraindicated (first trimester)	professional supervision
E		
Echinacea Angustifolia Root 1:2	professional supervision	professional supervision
Echinacea Premium Blend	professional supervision	professional supervision
Echinacea Purpurea Root 1:2	professional supervision	professional supervision
Echinacea Purpurea Glycetract 1:3	professional supervision	professional supervision
Echinacea Regular Blend	professional supervision	professional supervision
Elder Flowers 1:2	professional supervision	professional supervision
Elecampane 1:2	professional supervision	√ contraindicated
Euphorbia 1:2	professional supervision	professional supervision
Eyebright 1:2	professional supervision	professional supervision
False Unicorn 1:2	professional supervision	professional supervision
F		
Fennel 1:2	√ caution	professional supervision
Fenugreek 1:2	√ caution	professional supervision
Feverfew 1:5	√ caution (use low dose)	professional supervision
Fringe Tree 1:2	professional supervision	professional supervision
G		
Gentian 1:2	professional supervision	professional supervision
Ginger 1:2	professional supervision	professional supervision
Ginkgo Biloba 2:1	professional supervision	professional supervision
Globe Artichoke 1:2	professional supervision	professional supervision
Goat's Rue 1:2	professional supervision	professional supervision
Golden Rod 1:2	professional supervision	professional supervision
Golden Seal 1:3 (Cultivated)	√ contraindicated	√ contraindicated
Golden Seal 1:5 (Cultivated)	√ contraindicated	√ contraindicated
Gotu Kola 1:1	professional supervision	professional supervision
Gravel Root 1:2	professional supervision	professional supervision
Greater Celandine 1:2	√ contraindicated	√ contraindicated
Grindelia 1:2	professional supervision	professional supervision
Gymnema 1:1	professional supervision	professional supervision

Herbal Liquid	Pregnancy	Lactation
H		
Hawthorn Berries 1:2	professional supervision	professional supervision
Hawthorn Leaves 1:2	professional supervision	professional supervision
Hemidesmus 1:2	professional supervision	professional supervision
Hops 1:2	professional supervision	√ caution
Horsechestnut 1:2	√ caution	√ caution
Horseradish 1:2	√ avoid high doses	√ not advisable
Horsetail 1:2	professional supervision	professional supervision
J		
Jamaica Dogwood 1:2	√ contraindicated	√ contraindicated
K		
Kava 1:1	√ not recommended	√ not recommended
Korean Ginseng 1:2	professional supervision	professional supervision
L		
Ladies Mantle 1:2	professional supervision	professional supervision
Lavender 1:2	professional supervision	professional supervision
Lemon Balm 1:2	professional supervision	professional supervision
Licorice 1:1	professional supervision	professional supervision
Licorice High Grade 1:1	professional supervision	professional supervision
Lime Flowers 1:2	professional supervision	professional supervision
M		
Marshmallow Root 1:5	professional supervision	professional supervision
Marshmallow Root Glycetract 1:5	professional supervision	professional supervision
Meadowsweet 1:2	√ caution	√ caution
Mexican Valerian 1:2	professional supervision	√ caution
Mistletoe 1:2	professional supervision	professional supervision
Motherwort 1:2	√ caution	professional supervision
Mullein 1:2	professional supervision	professional supervision
Myrrh 1:5	√ best avoided	√ caution
N		
Nettle Leaf 1:2	professional supervision	professional supervision
Nettle Root 1:2	professional supervision	professional supervision
Nigella 1:2	√ contraindicated	professional supervision
O		
Oats Green 1:2	professional supervision	professional supervision
Oats Seed 1:1	professional supervision	professional supervision
Olive Leaves 1:2	professional supervision	professional supervision
Oregon Grape 1:2	√ contraindicated	√ contraindicated
P		
Paeonia 1:2	professional supervision	professional supervision
Pasque Flower 1:2	√ contraindicated	√ contraindicated
Passionflower 1:2	professional supervision	professional supervision
Pelargonium 1:5	professional supervision	professional supervision

Herbal Liquid	Pregnancy	Lactation
Peppermint 1:2	professional supervision	√ caution
Pleurisy Root 1:2	professional supervision	professional supervision
Poke Root 1:5	√ contraindicated	√ contraindicated
Prickly Ash 1:2	professional supervision	professional supervision
Propolis 1:5	professional supervision	professional supervision
Q		
Qing Hao 1:2	√ contraindicated	√ caution
R		
Raspberry Leaves 1:2	professional supervision	professional supervision
Red Clover Flower 1:2	professional supervision	professional supervision
Red Clover Flowering Tops 1:2	professional supervision	professional supervision
Rehmannia 1:2	√ caution	professional supervision
Rhodiola 2:1	professional supervision	professional supervision
Ribwort 1:2	professional supervision	professional supervision
Rosemary 1:2	professional supervision	professional supervision
S		
Saffron 1:20	√ caution	professional supervision
Sage 1:2	√ caution	√ contraindicated
Sarsaparilla 1:2	professional supervision	professional supervision
Saw Palmetto 1:2	professional supervision	professional supervision
Schisandra 1:2	√ contraindicated, except at birth	professional supervision
Senna Pods 1:2	professional supervision	√ caution
Shatavari 1:2	professional supervision	professional supervision
Shepherd's Purse 1:2	√ caution	√ caution
Siberian Ginseng 1:2	professional supervision	professional supervision
Skullcap 1:2	professional supervision	professional supervision
Squaw Vine 1:2	professional supervision	professional supervision
St John's Wort 1:2	professional supervision	√ caution
St John's Wort High Grade 1:2	professional supervision	√ caution
St Mary's Thistle 1:1	professional supervision	professional supervision
St Mary's Thistle Glycetract 1:1	professional supervision	professional supervision
Sundew 1:5	professional supervision	professional supervision
T		
Thuja 1:5	√ contraindicated	√ contraindicated
Thyme 1:2	professional supervision	professional supervision
Tienchi Ginseng 1:2	√ contraindicated	professional supervision
Tribulus 2:1	√ caution	√ caution
True Unicorn Root 1:2	professional supervision	professional supervision
Turmeric 1:1	professional supervision	professional supervision
V		
Valerian 1:2	professional supervision	√ caution
Vervain 1:2	professional supervision	professional supervision
Violet Leaves 1:2	professional supervision	professional supervision

Herbal Liquid	Pregnancy	Lactation
W		
White Horehound 1:2	√ caution	professional supervision
Wild Cherry 1:2	√ caution	professional supervision
Wild Yam 1:2	professional supervision	professional supervision
Willow Bark 1:2	professional supervision	√ contraindicated
Willow Herb 1:2	professional supervision	professional supervision
Withania 2:1	professional supervision	professional supervision
Wood Betony 1:2	professional supervision	professional supervision
Wormwood 1:5	√ contraindicated	√ contraindicated
Y		
Yarrow 1:2	√ caution	√ caution
Yellow Dock 1:2	professional supervision	√ caution
Z		
Zizyphus 1:2	professional supervision	professional supervision

Clinical Support & Seminars

Clinical Support Consultant – Berris Burgoyne

B.HSc., N.D.

Berris is an experienced naturopath with over 25 years in clinical practice. She runs a busy clinic in Brisbane where she treats a wide range of conditions including female reproductive issues; autoimmune disease, particularly involving the thyroid; immune depletion; fatigue, and nervous system conditions. Berris is a well-known presenter at complementary medicine seminars throughout Australia, New Zealand, the United States and the United Kingdom. She has a strong interest in herbal safety, particularly herb-drug interactions and is co-author of the Adverse Herb-Drug Interaction chapter in The Essential Guide to Herbal Safety by Simon Mills and Kerry Bone, published in 2005.

Clinical Support Consultant – Rose Cornelissen

MHSc., ND. DBM.

Rose's expertise has developed over 25 years as a naturopath and herbalist. This has involved extensive private practice and mentoring, as well as hands-on experience in growing, medicine making and cultural practice in both Eastern and Western countries. She has also held academic positions in herbal medicine at naturopathic universities, facilitated herbal outreach programs to remote communities, conducted regular radio segments on naturopathic health, and performed MediHerb practitioner and undergraduate support.

Rose has a special interest in the interdependence of traditional practice and evidence based medicine. This includes current self-adjusting demands on the profession and how to improve successful patient outcomes, especially in chronic disease and ageing.

Her postgraduate work in herbal medicine is part of a commitment to lifelong learning, critical appraisal and improving inter-professional dialogue around prevention and disease treatment.

MediHerb Clinical Support Line

The MediHerb Clinical Support Line is a commitment to supporting practitioners with advice on all aspects of natural medicine. MediHerb's Clinical Support Line Consultants are knowledgeable naturopaths with many years of clinical and teaching experience and are available to answer questions on:

- Treatment Protocols
- Herb/drug interactions
- Adverse reactions
- Safety of herbal medicine in pregnancy and lactation
- Information on specific MediHerb products and their actions
- Guidelines for establishing a natural medicine dispensary

MediHerb's Clinical Support Line Consultants are well attuned to the everyday problems and challenges that can arise in clinic. They are up-to-date with the latest research and clinical applications of natural medicine.

MediHerb's Clinical Support Line is available for practitioners Monday to Friday. To speak to a Clinical Support Consultant please call:

Australia – MediHerb Clinical Support
Phone: 1300 211 171

New Zealand – ProHerb Clinical Support
Phone Toll Free: 0800 553 556

Seminars for Qualified Health Care Professionals

MediHerb regularly conducts professional seminars throughout the world with experienced speakers such as Kerry Bone, Angela Hywood, Rob Santich, Berris Burgoyne and Tracey Cook. These seminars combine the best of traditional knowledge with the latest scientific research. Visit **www.mediherb.com.au** for an up-to-date seminar schedule.

Practitioner Resources

MediHerb Website

Our website, **www.mediherb.com.au** is the most comprehensive website on natural medicine and an invaluable resource for practitioners and students. **www.mediherb.com.au** features both public and member only information.

Public Area

Contains information on the MediHerb philosophy and the quality processes that deliver the world's finest herbal and nutritional products.

Members Only Area

This is where the site gets really interesting! You can go into the different areas to view comprehensive information on:

MediHerb Professional Library: use the dynamic search engine to discover all the herbal information we have produced dating back to 1987. You can search and view the *Phytotherapist's Perspective, Nutritional Perspective, Modern Phytotherapist* and *Professional Review* by herb, nutrient, phytochemical, condition or topic. It is a fantastic reference tool for all health professionals!

e-Newsletters and e-Monitors: by registering your details on the website you automatically receive a free subscription to our popular e-Newsletter and e-Monitor. Sent monthly, the e-Newsletter contains general interest articles, clinical information and updates on happenings in the industry and with MediHerb. The e-Monitor is a comprehensive review of recent research with a summary of what this research means for your practice. The e-Monitor also contains Kerry Bone's popular Clinical Monitor and is emailed quarterly.

Products: view the most up-to-date information on new and existing products and product specials, and search products by ingredient.

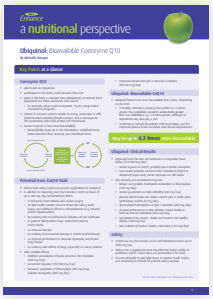
Seminars, News: see the latest information on all aspects of MediHerb and the world of natural therapies.

Nutritional & Phytotherapist's Perspectives

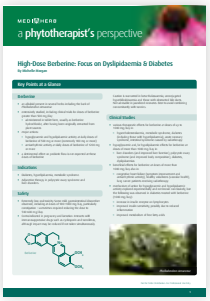
These publications provide website users with more clinical and technical information in a concise format. Like the rest of our Professional Library, the *Nutritional Perspective* and the *Phytotherapist's Perspective* can be searched by:

- **Herb** – common or botanical name (eg 'green tea' or *'Camellia sinensis'*).
- **Phytochemical** (eg 'resveratrol' or 'flavonoids').
- **Vitamin, mineral, trace element or nutritional supplement** (eg 'vitamin C', 'iron', 'chromium' or 'glucosamine').
- **Condition** (eg 'fatigue').
- **Topic** (eg 'quality issues').
- **Activity** (eg 'anti-inflammatory' or 'joint support').

The *Nutritional Perspective* features current scientific presentation of nutrition and nutritional supplements with application to specific conditions. It also includes important clinical information such as synergy (or antagonism) of nutrients, dietary considerations and relevant safety issues.



The *Phytotherapist's Perspective* features phytotherapy articles written by Kerry Bone and Michelle Morgan, and includes:



- Selected articles written by Kerry Bone for the *Townsend Letter for Doctors and Patients*.
- Monographs detailing technical and clinical information on specific herbs written by Kerry Bone and Michelle Morgan.
- An assortment of other articles outlining herbs suitable for use in specific conditions. Key constituents, quality issues, therapeutic activity and clinical studies are often a feature of these articles.

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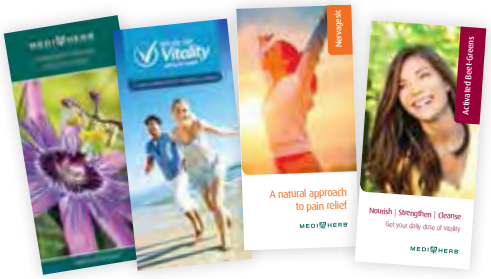

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- Smart and professional
- Includes all essential information
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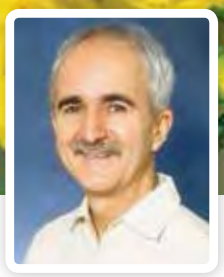

Principles and Practice of Phytotherapy – Second Edition
Modern Herbal Medicine

By Kerry Bone and Simon Mills

The first edition of Principles and *Practice of Phytotherapy* is well known as the leading text of herbal medicine in naturopathic and herbal colleges throughout the world. Now the long-awaited second edition brings a complete revision of the material in the first text including:

- 50 fully up-to-date evidence-based monographs including 7 new herbs: Gotu Kola, Willow Bark, Bugleweed, Butcher's Broom, Boswellia, Myrrh and Tribulus.
- New insights on herbal management of approximately 100 modern disease states.
- A comprehensive revision of vital safety data, including an extensive herb-drug interaction chart addressing key safety issues to help the reader differentiate between false and real concerns.
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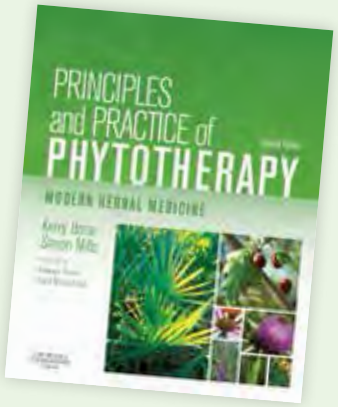
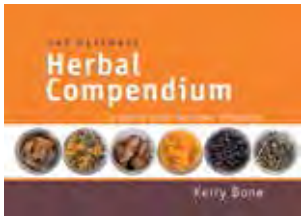


This valued text was exhaustively researched and carefully compiled by Kerry Bone and Simon Mills, who have more than 60 years of combined experience in clinical practice, education, manufacturing and research. This text is a must-have resource for any herbal medicine practitioner or student.

Winner of the 2013 James A Duke Excellence in Botanical Literature Award

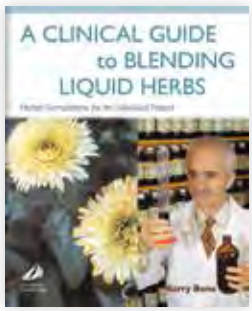


The Ultimate Herbal Compendium

By Kerry Bone

A Desktop Guide for Herbal Prescribers

The Ultimate Herbal Compendium is a reliable ready reference designed for the busy health practitioner. It contains up-to-date easily found information on a wide range of herbs and conditions, including doses for herbs in tablet form as well as liquids. Careful research of all the available herbal information combined with Kerry Bone's 25 years of clinical practice ensures that all valid herbal treatment options can be considered.



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By Kerry Bone

This highly practical guide explains in-depth how to use and blend liquid extracts for optimum results making it a must for all herbal medicine practitioners and students.

Monographs of 125 popular herbs used in the form of liquid extracts provide the herbal clinician with accessible and clinically relevant information. The monographs have been specifically designed for use in the clinic with an emphasis on providing the essential information in an easy to read format and outlines traditional use and the most up-to-date pharmacological and clinical studies. This guide is comprehensively referenced and contains appendices for thorough explanations, indices of herb and herb action as well as complete glossaries and a table of recommended dosages.

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Botanical Name Index

Botanical Name	Common Name
A	
Achillea millefolium	Yarrow
Actaea racemosa	Black Cohosh
Aesculus hippocastanum	Horsechestnut
Agathosma betulina	Buchu
Agrimonia eupatoria	Agrimony
Albizia lebbeck	Albizia
Alchemilla vulgaris	Ladies Mantle
Aletris farinosa	True Unicorn
Allium sativum	Garlic
Aloe spp.	Aloes Resin
Althaea officinalis	Marshmallow Root
Andrographis paniculata	Andrographis
Anemone pulsatilla	Pasque Flower
Angelica sinensis	Dong Quai
Apium graveolens	Celery Seed
Arctium lappa	Burdock
Arctostaphylos uva-ursi	Bearberry
Armoracia rusticana	Horseradish
Arnica montana	Arnica
Artemisia absinthium	Wormwood
Artemisia annua	Qing Hao
Asclepias tuberosa	Pleurisy Root
Asparagus racemosus	Shatavari
Astragalus membranaceus	Astragalus
Avena sativa	Oats
B	
Bacopa monniera	Bacopa
Baptisia tinctoria	Baptisia
Berberis aquifolium	Oregon Grape
Berberis vulgaris	Barberry
Bupleurum falcatum	Bupleurum
C	
Calendula officinalis	Calendula
Capsella bursa-pastoris	Shepherd's Purse
Capsicum spp.	Cayenne
Caulophyllum thalictroides	Blue Cohosh
Centella asiatica	Gotu Kola
Chamaelirium luteum	False Unicorn
Chelidonium majus	Greater Celandine
Chionanthus virginica	Fringe Tree
Cinnamomum cassia	Cinnamon Quills

Botanical Name	Common Name
C	
Citrus reticulata	Chen Pi
Codonopsis pilosula	Codonopsis
Coleus forskohlii	Coleus
Commiphora myrrha	Myrrh
Corydalis ambigua	Corydalis
Crataegus monogyna	Hawthorn
Crataeva nurvala	Crataeva
Crocus sativus	Saffron
Curcuma longa	Turmeric
Cynara scolymus	Globe Artichoke
D	
Dioscorea villosa	Wild Yam
Drosera longifolia	Sundew
E	
Echinacea angustifolia, Echinacea purpurea	Echinacea
Eleutherococcus senticosus	Siberian Ginseng
Elymus repens	Couch Grass
Epilobium parviflorum	Willow Herb
Equisetum arvense	Horsetail
Eschscholzia californica	Californian Poppy
Eupatorium purpureum	Gravel Root
Euphorbia hirta	Euphorbia
Euphrasia officinalis	Eyebright
F	
Filipendula ulmaria	Meadowsweet
Foeniculum vulgare	Fennel
Frangula purshiana	Cascara
Fucus vesiculosus	Bladderwrack
G	
Galega officinalis	Goat's Rue
Galium aparine	Clivers
Gentiana lutea	Gentian
Ginkgo biloba	Ginkgo
Glycyrrhiza glabra	Licorice
Grindelia camporum	Grindelia
Gymnema sylvestre	Gymnema
H	
Harpagophytum spp.	Devil's Claw
Hemidesmus indicus	Hemidesmus
Humulus lupulus	Hops
Hydrastis canadensis	Golden Seal
Hypericum perforatum	St John's Wort

Botanical Name	Common Name
I	
Inula helenium	Elecampane
Iris versicolor	Blue Flag
J	
Juglans cinerea	Butternut
Juglans nigra	Black Walnut
Justicia adhatoda	Adhatoda
L	
Lavandula angustifolia	Lavender
Leonurus cardiaca	Motherwort
Lycopus spp.	Bugleweed
M	
Marrubium vulgare	White Horehound
Matricaria chamomilla	Chamomile
Melissa officinalis	Lemon Balm
Mentha x piperita	Peppermint
Mitchella repens	Squaw Vine
N	
Nigella sativa	Nigella
O	
Olea europaea	Olive Leaf
P	
Paeonia lactiflora	Paeonia
Panax ginseng	Korean Ginseng
Panax notoginseng	Tienchi Ginseng
Passiflora incarnata	Passionflower
Pelargonium sidoides	Pelargonium
Phytolacca americana	Poke Root
Piper methysticum	Kava
Piscidia piscipula	Jamaica Dogwood
Plantago lanceolata	Ribwort
Prunus serotina	Wild Cherry
R	
Rehmannia glutinosa	Rehmannia
Rhodiola rosea	Rhodiola
Rosmarinus officinalis	Rosemary
Rubus idaeus	Raspberry
Rumex crispus	Yellow Dock
Ruscus aculeatus	Butcher's Broom
S	
Salix spp.	Willow Bark
Salvia officinalis	Sage
Salvia miltiorrhiza	Dan Shen

Botanical Name	Common Name
S	
Sambucus nigra	Elder Flowers
Schisandra chinensis	Schisandra
Scutellaria baicalensis	Baical Skullcap
Scutellaria lateriflora	Skullcap
Senna spp.	Senna Pods
Serenoa repens	Saw Palmetto
Silybum marianum	St Mary's Thistle
Smilax ornata	Sarsaparilla
Solidago virgaurea	Golden Rod
Stachys officinalis	Wood Betony
T	
Tanacetum parthenium	Feverfew
Taraxacum officinale	Dandelion
Thuja occidentalis	Thuja
Thymus vulgaris	Thyme
Tilia cordata	Lime Flowers
Tribulus terrestris	Tribulus
Trifolium pratense	Red Clover
Trigonella foenum-graecum	Fenugreek
Trillium erectum	Beth Root
Turnera diffusa	Damiana
U	
Uncaria tomentosa	Cat's Claw
Urtica dioica	Nettle
V	
Vaccinium myrtillus	Bilberry
Valeriana edulis	Mexican Valerian
Valeriana officinalis	Valerian
Verbascum thapsus	Mullein
Verbena officinalis	Vervain
Viburnum opulus	Cramp Bark
Viola odorata	Violet
Viscum album	Mistletoe
Vitex agnus-castus	Chaste Tree
W	
Withania somnifera	Withania
Z	
Zanthoxylum clava-herculis	Prickly Ash
Zea mays	Corn Silk
Zingiber officinale	Ginger
Ziziphus jujuba var. *spinosa*	Zizyphus

Common Name Index

Common Name	Botanical Name
J	
Jamaica Dogwood	*Piscidia piscipula*
K	
Kava	*Piper methysticum*
Korean Ginseng	*Panax ginseng*
L	
Ladies Mantle	*Alchemilla vulgaris*
Lavender	*Lavandula angustifolia*
Lemon Balm	*Melissa officinalis*
Licorice	*Glycyrrhiza glabra*
Lime Flowers	*Tilia cordata*
M	
Marshmallow Root	*Althaea officinalis*
Meadowsweet	*Filipendula ulmaria*
Mexican Valerian	*Valeriana edulis*
Mistletoe	*Viscum album*
Motherwort	*Leonurus cardiaca*
Mullein	*Verbascum thapsus*
Myrrh	*Commiphora myrrha*
N	
Nettle	*Urtica dioica*
Nigella	*Nigella sativa*
O	
Oats	*Avena sativa*
Olive Leaf	*Olea europaea*
Oregon Grape	*Berberis aquifolium*
P	
Paeonia	*Paeonia lactiflora*
Pasque Flower	*Anemone pulsatilla*
Passionflower	*Passiflora incarnata*
Pelargonium	*Pelargonium sidoides*
Peppermint	*Mentha x piperita*
Pleurisy Root	*Asclepias tuberosa*
Poke Root	*Phytolacca americana*
Prickly Ash	*Zanthoxylum clava-herculis*
Q	
Qing Hao	*Artemisia annua*
R	
Raspberry	*Rubus idaeus*
Red Clover	*Trifolium pratense*
Rehmannia	*Rehmannia glutinosa*
Rhodiola	*Rhodiola rosea*
Ribwort	*Plantago lanceolata*

Common Name	Botanical Name
R	
Rosemary	*Rosmarinus officinalis*
S	
Saffron	*Crocus sativus*
Sage	*Salvia officinalis*
Sarsaparilla	*Smilax ornata*
Saw Palmetto	*Serenoa repens*
Schisandra	*Schisandra chinensis*
Senna Pods	*Senna* spp.
Shatavari	*Asparagus racemosus*
Shepherd's Purse	*Capsella bursa-pastoris*
Siberian Ginseng	*Eleutherococcus senticosus*
Skullcap	*Scutellaria lateriflora*
Squaw Vine	*Mitchella repens*
St John's Wort	*Hypericum perforatum*
St Mary's Thistle	*Silybum marianum*
Sundew	*Drosera longifolia*
T	
Thuja	*Thuja occidentalis*
Thyme	*Thymus vulgaris*
Tienchi Ginseng	*Panax notoginseng*
Tribulus	*Tribulus terrestris*
True Unicorn	*Aletris farinosa*
Turmeric	*Curcuma longa*
V	
Valerian	*Valeriana officinalis*
Vervain	*Verbena officinalis*
Violet	*Viola odorata*
W	
White Horehound	*Marrubium vulgare*
Wild Cherry	*Prunus serotina*
Wild Yam	*Dioscorea villosa*
Willow Bark	*Salix* spp.
Willow Herb	*Epilobium parviflorum*
Withania	*Withania somnifera*
Wood Betony	*Stachys officinalis*
Wormwood	*Artemisia absinthium*
Y	
Yarrow	*Achillea millefolium*
Yellow Dock	*Rumex crispus*
Z	
Zizyphus	*Ziziphus jujuba* var. *spinosa*

Potential Herb-Drug Interactions for Commonly Used Herbs*

How to Read the Chart

The chart is read from left to right. The information in the Basis of Concern column provides the evidence for the information in the Potential Interaction column. For example, clinical studies found that administration of St John's wort resulted in decreased levels of cancer chemotherapeutic drugs. (Italicised words represent the information in the Herb-Drug Interaction chart below.)

Sometimes more details are provided in the Basis of Concern column. For example, in a clinical study with healthy volunteers administration of St John's wort resulted in increased clearance of the hypoglycaemic drug gliclazide, and so may reduce the drug's efficacy, however, glucose and insulin response to glucose loading was unchanged.

A recommended action is suggested on a risk assessment of the information in the Basis of Concern. In these examples:

- It is recommended that St John's wort is contraindicated in patients taking cancer chemotherapeutic drugs.
- In the case of gliclazide, because the trial found little effect on a clinically-relevant outcome, the potential interaction is considered low risk and a caution is recommended: the patient should be monitored, through the normal process of repeat consultations.

For more information on the process used to assess the herb-drug interaction research (and why some research is not included), how the risk of interaction is assessed, with worked examples from the chart: go to **www.mediherb.com.au** and view the Herb-Drug Interaction Chart under the 'Education' tab, look for the link to 'Prescribing Guidelines & Assessment of Risk'.

Drug	Potential Interaction	Basis of Concern	Recommended Action
Baical Skullcap *Scutellaria baicalensis*			
Losartan	May increase drug levels.	Clinical trial with healthy volunteers (water-based extract,[A] dried herb equivalent: 12 g/day).[1]	**Monitor** (low level of risk at typical doses).
Rosuvastatin	May decrease drug levels.	Clinical study with healthy volunteers using 150 mg/day of isolated constituent (baicalin).[2]	**Monitor** (low level of risk).[B]
Barberry[C] *Berberis vulgaris*			
Drugs that displace the protein binding of bilirubin eg phenylbutazone	May potentiate effect of drug on displacing bilirubin.	Herb Alone Theoretical concern based on *in vitro* data (displaced bilirubin from albumin) and in animals with high dose of berberine by injection (reduced bilirubin serum protein binding).[3]	**Monitor** (low level of risk).
Bilberry *Vaccinium myrtillus*			
Warfarin	Potentiation of bleeding.	Herb Alone Antiplatelet activity observed in healthy volunteers (173 mg/day of bilberry anthocyanins).[4] Case report of postoperative bleeding (bilberry extract undefined).[5] Herb or Constituent and Drug Uncontrolled trial (600 mg/day of bilberry anthocyanins + 30 mg/day of vitamin C for 2 months then reduced maintenance dose) of 9 patients taking anticoagulant drugs – treatment reduced retinal haemorrhages without impairing coagulation.[6] Case report (patient reported to consume "large amounts of bilberry fruits every day for five years").[7]	**Monitor** at high doses (> 100 mg/day anthocyanins, low level of risk).
Black Cohosh *Actaea racemosa (Cimicifuga racemosa)*			
Statin drugs eg atorvastatin	May potentiate increase in liver enzymes, specifically ALT.	Case report.[8]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Bladderwrack *Fucus vesiculosus*			
Hyperthyroid medication eg carbimazole	May decrease effectiveness of drug due to natural iodine content.[9]	Theoretical concern, no cases reported.	**Contraindicated** unless under close supervision.
Thyroid replacement therapies eg thyroxine	May add to effect of drug.	Theoretical concern linked to a case report where "kelp" caused hyperthyroidism in a person not taking thyroxine.[10]	**Monitor** (low level of risk).
Bugleweed *Lycopus virginicus, Lycopus europaeus*			
Radioactive iodine	May interfere with administration of diagnostic procedures using radioactive isotopes.[11]	Case report.	**Contraindicated.**
Thyroid hormones	Should not be administered concurrently with preparations containing thyroid hormone.[12]	Theoretical concern based on deliberations of German Commission E.	**Contraindicated.**
Cat's Claw *Uncaria tomentosa*			
HIV protease inhibitors	May increase drug level.	Case report, in a patient with cirrhosis being evaluated for a liver transplant.[13]	**Monitor** (low level of risk).
Cayenne (Chilli Pepper) *Capsicum* spp. (See also Polyphenol-containing herbs)			
ACE inhibitor	May cause drug-induced cough.	Case report (topical capsaicin). Theoretical concern since capsaicin depletes substance P.[14]	**Monitor** (very low level of risk).
Theophylline	May increase absorption and drug level.	Clinical study (healthy volunteers, chilli-spiced meal). Absorption and drug level lower than during fasting.[15]	**Monitor** (low level of risk).
Celery Seed *Apium graveolens*			
Thyroxine	May reduce serum levels of thyroxine.	Case reports.[16]	**Monitor** (very low level of risk).
Coleus *Coleus forskohlii*			
Antiplatelet and anticoagulant drugs	May alter response to drug.	Theoretical concern initially based on *in vitro* antiplatelet activity of active constituent forskolin, and *in vivo* antiplatelet activity in an animal model (oral doses: standardised Coleus extract and forskolin).[17] More recent *in vivo* animal research: standardised Coleus extract reduced the anticoagulant activity of warfarin.[18]	**Monitor** (low level of risk).
Hypotensive medication	May potentiate effects of drug.	Theoretical concern based on ability of high doses of forskolin and standardised Coleus extract to lower blood pressure in normotensive and hypertensive animals.[19,20] Clinical data from weight management trials: no effect on blood pressure in three trials, trend toward lower blood pressure in one small study.[21,22] No experimental or clinical studies conducted with hypotensive medication.	**Monitor** (low level of risk).
Prescribed medication	May potentiate effects of drug.	Theoretical concern based on ability of forskolin to activate increased intracellular cyclic AMP *in vitro*.[23]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Cranberry *Vaccinium macrocarpon*			
Midazolam	May increase drug levels.	Clinical trials with healthy volunteers: effect on drug levels conflicting – increased (double-strength juice[D], 240 mL tds; defined as a weak interaction[E])[24] and no effect (cranberry juice,[F] 200 mL tds).[25]	**Monitor** (low level of risk).
Simvastatin	May increase side effects of drug.	Case report (355–473 mL/day cranberry juice drink (7% juice), rated as 'possible' interaction).[26]	**Monitor** (low level of risk).
Warfarin	May alter INR (most frequently increase).	Case reports (where reported the dosage was often high: up to 2000 mL/day, juice strength undefined; 1.5–2 quarts (1420–1893 mL)/day of cranberry juice cocktail; 113 g/day, cranberry sauce).[27-35] Clinical trials: no significant effect found in atrial fibrillation patients (250 mL/day cranberry juice cocktail),[36] in patients on warfarin for a variety of indications (8 oz (236 mL)/day cranberry juice cocktail),[37] but increase was observed in healthy volunteers (juice concentrate equivalent to 57 g of dry fruit/day).[38] No alteration of prothrombin time in patients on stable warfarin therapy (480 mL/day cranberry juice)[39] or of thromboplastin time in healthy volunteers (600 mL/day cranberry juice[F]).[25] *See also note D.*	**Monitor** (low level of risk at typical doses).
Dan Shen *Salvia miltiorrhiza*			
Midazolam	May decrease drug levels.	Clinical trial with healthy volunteers.[40]	**Monitor** (medium level of risk).
Warfarin	May potentiate effect of drug.	Case reports: increased INR.[41-43]	**Contraindicated.**
Devil's Claw *Harpagophytum* spp.			
Warfarin	May increase bleeding tendency.	Case report (purpura) with very few details.[44] Unlikely to occur.	**Monitor** (very low level of risk).
Dong Quai *Angelica sinensis, Angelica polymorpha*			
Warfarin	May potentiate effect of drug.	Case reports: increased INR and PT;[45] increased INR and widespread bruising.[46]	**Monitor** (low level of risk).
Echinacea *Echinacea angustifolia, Echinacea purpurea*			
Antiretroviral drugs	HIV non-nucleoside transcriptase inhibitors eg etravirine: May alter drug levels.	Clinical trial (*E. purpurea* root; HIV-infected patients): no effect overall, but large interindividual variability occurred (from near 25% decreases to up to 50% increases in drug concentrations). All maintained an undetectable viral load.[47]	**Monitor** (low level of risk).
	HIV protease inhibitors eg darunavir May decrease drug levels.	Clinical trial (*E. purpurea* root; HIV-infected patients): no effect overall, but some patients showed a decrease by as much as 40%. All maintained an undetectable viral load. (Patients were also taking a low dose of ritonavir.)[48]	**Monitor** (low level of risk).
Immunosuppressant medication	May decrease effectiveness of drug.[49,50]	Theoretical concern based on immune-enhancing activity of Echinacea. No cases reported.	**Contraindicated.**
Midazolam	Decreases drug levels when drug administered intravenously.[G]	Clinical study (*E. purpurea* root, 1.6 g/day).[51]	**Monitor** (medium level of risk) when drug administered intravenously.
Evening Primrose Oil *Oenothera biennis*			
Phenothiazines	May decrease effectiveness of drug.	Reports of worsening epilepsy in schizophrenics. No causal association demonstrated and no effect observed in later trials.[52]	**Monitor** (very low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Garlic *Allium sativum* (See also Hypoglycaemic herbs)			
Antiplatelet and anticoagulant drugs	Aspirin: May increase bleeding time. Clopidogrel: May potentiate effect of drug. Warfarin: May potentiate effect of drug. Large doses could increase bleeding tendency.	Concern may be overstated, as antiplatelet/anticoagulant drugs are often coadministered eg aspirin and warfarin. Herb Alone Case reports of increased bleeding tendency with high garlic intake. In three of the four cases the bleeding occurred after surgery.[53-56] Anecdotal: garlic taken shortly before testing interferes with platelet aggregation in control subjects.[57] *Single-dose studies, and studies demonstrating a beneficial effect on disordered function, including for example, in atherosclerosis, are excluded.* Clinical studies (3 g/day or less of fresh garlic): inhibited platelet aggregation in three trials† (about 2.4–2.7 g/day, patients and healthy volunteers),[58-60] but no effect on platelet aggregation in one trial† (about 1.8 g/day, patients);[61] decreased serum thromboxane in one trial (3 g/day, healthy volunteers)[62]. † *See note H.* Clinical studies (4.2–5 g/day of fresh garlic, patients and healthy volunteers): no effect on platelet aggregation, fibrinogen level, prothrombin time, whole blood coagulation time.[63-65] Clinical studies (8–10 g/day of fresh garlic, healthy volunteers): inhibited platelet aggregation and increased clotting time.[66,67] Herb and Drug Aspirin: No published studies. Clopidogrel: Garlic tablet ("odorless", dose undefined) added to improve drug therapy, reduced platelet hyperactivity in two patients.[57] Warfarin: Two cases of increased INR and clotting times, very few details (garlic pearls, garlic tablets: dosage undefined).[68] Clinical trial: no effect in healthy volunteers (enteric-coated tablets equivalent to 4 g/day of fresh garlic).[38]	**Monitor** at doses equivalent to ≥ 3 g/day fresh garlic (low level of risk). **Stop taking** at least one week before surgery.
HIV protease inhibitors	Decreases drug level.	Saquinavir: Two clinical studies (garlic extract, standardised for allicin content) with healthy volunteers[69,70] – large variability (in one study,[70] decrease (15%) was not significant). Ritonavir-boosted atazanavir: Case report (6 stir-fried garlic cloves three times per week).[71]	**Monitor** (medium level of risk).
Ginger *Zingiber officinale*			
Antacids	May decrease effectiveness of drug.	Theoretical concern since ginger increases gastric secretory activity *in vivo* (animals).[49]	**Monitor** (low level of risk).
Antiplatelet and anticoagulant drugs	Phenprocoumon: May increase effectiveness of drug.	Case report (dosage undefined): increased INR.[72]	**Monitor** at doses equivalent to < 4 g/day dried ginger (low level of risk).
	Warfarin: Increased risk of spontaneous bleeding.	Concern based on antiplatelet activity and potential to inhibit thromboxane synthetase. Herb Alone Clinical studies: inhibition of platelet aggregation (5 g, divided single dose, dried ginger) in healthy volunteers,[73] and coronary artery disease patients (10 g, single dose, dried ginger),[74] but no effect in healthy volunteers (2 g, single dose, dried ginger),[75] or coronary artery disease patients (4 g/day, dried ginger);[74] inhibition of platelet thromboxane production in healthy volunteers (5 g/day, fresh ginger).[76] Herb and Drug Case report: bleeding (ginger dosage undefined).[77] No pharmacokinetic or pharmacodynamic effect demonstrated in a clinical trial with healthy volunteers (3.6 g/day, dried ginger).[78] Epidemiological study: ginger (as a complementary medicine) was significantly associated with an increased risk of self-reported bleeding in patients taking warfarin.[79] These results should be viewed cautiously (*see note J*).	**Monitor** at doses equivalent to < 4 g/day dried ginger (very low risk). **Contraindicated** unless under close supervision at doses equivalent to > 4 g/day dried ginger.
Nifedipine	May produce a synergistic antiplatelet effect.	Clinical study (1 g/day, dried ginger) in healthy volunteers and hypertensive patients.[80]	**Contraindicated.**

Drug	Potential Interaction	Basis of Concern	Recommended Action
Ginkgo[K] *Ginkgo biloba*			
Anticonvulsant medication eg carbamazepine, sodium valproate	May decrease the effectiveness of drug.	Case reports, two with well-controlled epilepsy,[81] others anecdotal and uncertain.[82-84]	**Monitor** (medium level of risk). Increasing the intake of vitamin B6 may be advisable for patients taking anticonvulsants.[L]
Antiplatelet and anticoagulant drugs	Prolongation of bleeding and/or increased bleeding tendency.	Concern based on antiplatelet activity. Bleeding events associated with Ginkgo alone or in combination with these and other drugs have been reported but a causal relationship was not established conclusively. Although a retrospective population-based study found risk of haemorrhage was associated with elderly patients (65 years or older) who were taking Ginkgo alone.[85] Herb Alone Rare case reports of bleeding.[86-88] Meta-analysis of randomised, placebo-controlled trials (healthy volunteers and patients): results indicate standardised Ginkgo extract does not increase the risk of bleeding.[89] Randomised, 5-year trial (elderly participants; Ginkgo 50:1 extract, 240 mg/day, equivalent to 12 g/day of dried leaf): no significant difference in incidence of haemorrhagic events.[90] Herb and Drug Retrospective population-based study in Taiwan: the relative risk of haemorrhage associated with the use of Ginkgo extract combined with drugs (clopidogrel, cilostazol, ticlopidine, warfarin) was not significant.[85] *See also note M.* Aspirin: Case reports (2, bleeding;[86] one, extensive bruising after a fall – although possibly high Ginkgo dose (400 mg/day, undefined)).[91] Clinical studies: no additional effect on platelet function, platelet aggregation or bleeding time.[92-94] Cilostazol: Clinical studies with healthy volunteers (Ginkgo extract (undefined): single dose 120 mg) – bleeding time prolonged; no change in platelet aggregation or clotting time, and no significant correlation between prolongation of bleeding time and inhibition of platelet aggregation;[95] no effect on pharmacokinetics or bleeding time, the increase in platelet aggregration was not significant (Ginkgo extract (undefined): 160 mg/day).[96] Clopidogrel: Case report (bruising and bleeding).[97] Clinical study with healthy volunteers (Ginkgo extract (undefined): single dose 120 mg) – no effect on platelet aggregation, bleeding times.[95] Ticlopidine: Case report (bleeding).[87] Clinical studies: no significant additional effect on bleeding time or platelet aggregation (Ginkgo 50:1 extract: single dose 80 mg, equivalent to 4 g of dried leaf; healthy volunteers),[98] and at the higher dose (120 mg/day) did not affect drug levels;[99] increased inhibitory response of platelets to testing with two agonists (ie antiplatelet effect) for drug and herb compared with drug alone, although effect was small and statistical and clinical signficance is unknown (Ginkgo extract (undefined): 160 mg/day; pilot study of patients who had an acute ischaemic stroke or transient ischaemic attack).[100] Warfarin: Case report (bleeding).[86] Clinical studies (healthy volunteers and patients): no additional effect on INR, platelet aggregation, coagulation parameters or plasma drug level.[78,101,102]	**Monitor** (low level of risk).
Antipsychotic medication eg haloperidol, olanzapine, clozapine	May potentiate the efficiency of drug in patients with schizophrenia.	Randomised, controlled trials (Ginkgo 50:1 extract: 120–360 mg/day, equivalent to 6–18 g/day of dried leaf).[103-106]	Prescribe cautiously. **Reduce** drug if necessary in conjunction with prescribing physician.
Antiretroviral drugs	HIV integrase inhibitors eg raltegravir: May alter drug levels	Clinical study with healthy volunteers (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf) found an increase in plasma levels, due to large interindividual variability, not considered to be of clinical importance. (The drug's pharmacokinetics are known for considerable intra- and interindividual variability.)[107]	**Monitor** (low level of risk).
	HIV non-nucleoside transcriptase inhibitors eg efavirenz: May decrease drug levels.	Case report.[108]	**Monitor** (medium level of risk).
Atorvastatin – *See Statin drugs below*			

Drug	Potential Interaction	Basis of Concern	Recommended Action
Ginkgo[K] *Ginkgo biloba* (continued)			
Benzodiazepines	May alter drug level.	Alprazolam: Clinical trial in healthy volunteers found no effect (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf).[109] Diazepam: Clinical trial in healthy volunteers found no effect (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf).[110] Midazolam: Clinical trials in healthy volunteers found conflicting results on drug levels: increased (defined as a weak interaction[E]; Ginkgo 50:1 extract: 360 mg/day, equivalent to 18 g/day of dried leaf),[111] decreased (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf)[112] and no effect (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf).[113]	**Monitor** (low level of risk).
Hypoglycaemic drugs	Glipizide: May cause hypoglycaemia.	Observation from aborted trial: hypoglycaemia occurred in volunteers with normal glucose tolerance within 60 minutes.[114] Ginkgo 50:1 extract was administered as a single dose of 120 mg, equivalent to 6 g of dried leaf.[115]	**Monitor** (low level of risk).
	Metformin: May enhance effectiveness of drug.	Clinical trial: elimination half-life was increased at doses of metformin 850 mg, three times a day. Effect not significant at doses to 500 mg, twice a day. Ginkgo 50:1 extract was administered as a single dose of 120 mg, equivalent to 6 g of dried leaf.[114]	**Monitor** at doses of metformin > 1 g/day (medium level of risk). **Reduce** drug if necessary in conjunction with prescribing physician.
	Pioglitazone: May increase drug level.	Clinical trial with healthy volunteers (Ginkgo 50:1 extract: 120 mg/day, equivalent to 6 g/day of dried leaf).[116]	**Monitor** (low level of risk).
	Tolbutamide: May decrease effectiveness of drug.	Clinical trials with healthy volunteers: nonsignificant reduction in glucose-lowering effect of drug (Ginkgo 50:1 extract: 360 mg/day, equivalent to 18 g/day of dried leaf);[111] pharmacokinetics not altered (Ginkgo 50:1 extract: 240 and 360 mg/day).[111,113]	**Monitor** (low level of risk).
Nifedipine	May increase drug levels or side effects.	Clinical studies: mixed results found for mean plasma drug level – increase (120 mg/day, equivalent to 6 g/day of dried leaf)[117] and no effect (240 mg/day, equivalent to 12 g/day of dried leaf).[118] However, at the higher dose, maximal plasma drug level and heart rate was increased with adverse drug reactions for participants with highest plasma drug levels (headache, dizziness, hot flushes).[118]	**Monitor** at doses < 240 mg/day, equivalent to < 12 g/day of dried leaf (medium level of risk). **Contraindicated** for higher doses.
Omeprazole	May decrease drug levels.	Clinical trials with healthy volunteers found conflicting results on drug levels: decreased (Ginkgo 50:1 extract: 280 mg/day, equivalent to 14 g/day of dried leaf);[119] and no effect (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf).[113]	**Monitor** (low level of risk).
Statin drugs	May decrease drug levels.	Atorvastatin: Clinical study with healthy volunteers (Ginkgo 50:1 extract: 360 mg/day, equivalent to 18 g/day of dried leaf). No pharmacodynamic effect was observed.[120] Simvastatin: Clinical study with healthy volunteers (Ginkgo 50:1 extract: 240 mg/day, equivalent to 12 g/day of dried leaf) – drug levels decreased, but active metabolite drug levels not affected. Pharmacodynamics (cholesterol lowering) of the drug not significantly affected, although trend towards lowering of LDL-cholesterol efficacy observed.[121]	**Monitor** (low level of risk).
Talinolol	May increase drug levels.	Clinical trial with healthy volunteers.[122]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Golden Seal[c] *Hydrastis canadensis*			
Drugs which displace the protein binding of bilirubin eg phenylbutazone	May potentiate effect of drug on displacing bilirubin.	Herb Alone Theoretical concern based on *in vitro* data (displaced bilirubin from albumin) and in animals with high dose of berberine by injection (reduced bilirubin serum protein binding).[3]	**Monitor** (low level of risk).
Midazolam	May increase drug level.	Clinical trial (defined as a weak interaction[f]).[123]	**Monitor** (low level of risk).
Green Tea *Camellia sinensis* (See also Polyphenol-containing herbs and Tannin-containing herbs)			
Boronic acid-based protease inhibitors eg bortezomib	May decrease efficacy of drug.	Theoretical concern based on initial *in vitro* data and *in vivo* animal study (green tea constituent: EGCG reduced tumour cell death induced by drug).[124] However, a further *in vivo* animal study found EGCG was not antagonistic to the activity of the drug.[125] *See note N.*	**Contraindicated** at high doses (around 600 mg/day EGCG or 1 g/day green tea catechins).[p] More information required for doses below this level.
Folate	May decrease absorption.	Clinical study with healthy volunteers.[126] Clinical significance unclear, as was a one-day study (ie not ongoing administration), with 50 mg of green tea catechins administered before, during and up to 2 hours after folate (for a total of 250 mg of catechins).	If taken simultaneously, may need to **increase** dose of folate. The effect may be relatively small – more information is required.
Immunosuppressives	May increase drug levels.	Case report (patient was a CYP3A4 poor metabolizer).[127]	**Monitor** (medium level of risk).
Sildenafil	May increase bioavailability of drug.	Clinical study with healthy volunteers (2 g, single dose, green tea powder containing 60 mg catechins). Blood pressure and electrocardiogram were unchanged.[128]	**Monitor** (low level of risk).
Statin drugs eg simvastatin	May increase plasma level and side effect of drug.	One case reported of muscle pain (side effect). Pharmacokinetic evaluation indicated green tea (1 cup) increased the bioavailability of simvastatin in this patient.[129]	**Monitor** (low level of risk).
Sunitinib	May reduce bioavailability of drug.	Case report (effect appeared dose-dependent). Considering the pharmacokinetic data (interaction in mice), the authors recommended avoiding green tea intake or leaving an interval of 4 hours between beverage and drug intake.[130]	**Contraindicated**, unless **taken** at least 4 hours **apart**.
Warfarin	May inhibit effect of drug: decreased INR.	Case report (brewed green tea: 0.5–1 gallon/day).[131]	**Monitor** (very low level of risk).
Hawthorn *Crataegus monogyna, Crataegus laevigata (C. oxyacantha)* (See also Tannin-containing herbs)			
Digoxin	May increase effectiveness of drug.	Clinical studies indicate a (beneficial) synergistic effect.[132,133] Pharmacokinetics not affected in a clinical study (healthy volunteers).[134]	**Monitor** (low level of risk).
Hypotensive drugs	May increase effectiveness of drug.	Controlled trials where drugs known to be taken by all or many heart disease patients: blood pressure decreased significantly (2 trials),[135,136] decreased nonsignificantly (1 trial)[137] and was unchanged (1 trial).[138] Significant decrease in blood pressure observed in diabetics taking hypotensive drugs (1 trial).[139]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Hypoglycaemic herbs eg *Gymnema sylvestre*, goat's rue (*Galega officinalis*), fenugreek (*Trigonella foenum-graecum*), psyllium (*Plantago ovata, P. psyllium, P. indica*) (See also Ginkgo, Korean Ginseng, St John's Wort, St Mary's Thistle)			
Hypoglycaemic drugs including insulin	May potentiate hypoglycaemic activity of drug.	In uncontrolled trials, high dose, long-term administration of Gymnema extract (equivalent to 10–13 g/day dried leaf) reduced insulin and hypoglycaemic drug requirements in diabetics.[140,141] Hypoglycaemic effects of fenugreek (15–100 g/day dried and/or defatted seed) observed in type 1 and type 2 diabetics including those on therapeutic and subtherapeutic doses of hypoglycaemic drugs.[142-147] No effect on glucose or insulin responses in women with PCOS treated with metformin and fenugreek (concentrated extract, equivalent to about 10 g/day dried and fresh seed).[148] Hypoglycaemic effects observed in many well-controlled clinical trials for psyllium (10.2–15 g/day, more than 6 weeks) in type 2 diabetics. Drug dosage adjustments were not required.[149-152] *See also note Q*. In one small, uncontrolled trial, nearly 70% of type 1 diabetics experienced hypoglycaemic episodes. Reductions in insulin dosage may have been required had the trial been of longer duration (10.8 g/day of husk, about 1 week).[153] (There is also clinical evidence that high fibre diets (10–60 g/day) worsen control of type 2 diabetes in patients who are poorly controlled with oral hypoglycaemic drugs.[154]) Several trials have found no effect for garlic on blood glucose in type 2 diabetes, although in a double-blind, placebo-controlled trial (using enteric-coated tablets), a reduction in the dosage of oral hypoglycaemic drugs was required (these patients had fasting blood glucose above 8.0 mmol/L).[155]	Prescribe cautiously and monitor blood sugar regularly. **Warn** patient about possible hypoglycaemic effects. **Reduce** drug if necessary in conjunction with prescribing physician.
Kava *Piper methysticum*			
CNS depressants eg alcohol, barbiturates, benzodiazepines	Potentiation of drug effects.	Theoretical concern based on deliberations of German Commission E[12] and the anxiolytic activity of kava.[49] Two apparent case reports (kava + benzodiazepines (alprazolam, flunitrazepam)).[156,157] Clinical trials with healthy volunteers: no additional side effects observed for kava (extract containing 240 mg/day of kava lactones) + benzodiazepine (bromazepam),[150] and kava (extract containing 210 mg/day of kava lactones) + alcohol.[159] Clinical study with healthy volunteers: no effect on pharmacokinetic parameters of midazolam (extract provided 253 mg/day of kava lactones).[123]	**Monitor** (low level of risk).
L-dopa and other Parkinson's disease treatments	Possible dopamine antagonist effects.	Case reports.[160,161] Although, kava is unlikely to be responsible for central dopaminergic antagonism (experimental model)[162] and kava reduced parkinsonism induced by neuroleptic drugs (observational study, psychiatric patients).[163]	**Contraindicated** unless under close supervision.
Korean Ginseng *Panax ginseng*			
Antihypertensive medications including nifedipine	General: May decrease effectiveness of drug.	Theoretical concern since hypertension is a feature of GAS. Clinical significance unclear.[49] Assessment of 316 hospital patients found Korean ginseng to have a contrary effect only in a very small percentage: blood pressure increase in 5% of hypertensives; increase in 3% and decrease in 2% of normotensives; decrease in 6% of hypotensives.[164] No information on concurrent medications. *Note for clinical trial data below:* Acute, single-dose trials excluded. High doses used in several trials. Herb Alone Clinical trials: no significant effects found in healthy volunteers,[165,166] those with metabolic syndrome,[167] type 2 diabetes[168] or glaucoma,[169] although baseline blood pressure may be a factor.[167] Herb and Drug Clinical trials: decreased blood pressure in essential hypertension,[170] and coronary artery disease[171] but no effect in white coat hypertension[170] and essential hypertension.[172]	**Monitor** (very low level of risk).
	Nifedipine: May increase drug levels.	Clinical trial.[117]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Korean Ginseng *Panax ginseng* (continued)			
Antiplatelet and anticoagulant drugs	General: May potentiate effects of drug.	Herb Alone Two epidemiological studies in Korea: long-term intake (3–5 years) prolonged plasma clotting times (APTT),[173,174] and decreased platelet aggregation.[173] (Dosage in Korea is generally high.) Clinical trial (healthy volunteers): inhibited platelet aggregation, but no effect on coagulation (PT, APTT).[175]	**Monitor** (very low level of risk).
	Warfarin: May decrease effectiveness of drug.	Herb and Drug One case reported (decreased INR)[176] but clinical significance unclear. No effect demonstrated in three clinical trials (healthy volunteers and patients) for INR, prothrombin time and platelet aggregation.[177-179] Although the design of the trials has been criticised. *See note R.*[180]	**Monitor** (low level of risk).
Cancer chemotherapeutic drugs eg imatinib	May potentiate adverse effect possibly by altered metabolism.	Case report (hepatotoxicity; probable causality).[181]	**Monitor** (low level of risk).
CNS stimulants	May potentiate effects of drug.[49]	Theoretical concern since CNS stimulation is a feature of GAS. Clinical significance unclear.	**Monitor** (low level of risk).
HIV integrase inhibitors eg raltegravir	May potentiate adverse effect possibly by altered metabolism.	Case report (elevated liver enzymes: probable causality, dosage unknown).[182]	**Monitor** (low level of risk).
Hypoglycaemic drugs including insulin	May potentiate hypoglycaemic activity of drug.[50]	Theoretical concern based on clinically observed hypoglycaemic activity of ginseng in newly diagnosed type 2 diabetics.[183] Clinical significance unclear. No effect on insulin sensitivity or beta-cell function after very high doses in newly diagnosed type 2 diabetics or those with impaired glucose tolerance.[184] Korean red ginseng (2.7 g/day) reduced the requirement for insulin in about 40% of diabetics in a small uncontrolled trial.[185] No adverse effects in three trials of type 2 diabetics well controlled with diet and/or oral hypoglycaemic drugs.[168,186,187]	**Monitor** (low level of risk).
MAO inhibitors eg phenelzine	May cause side effects such as headache, sleeplessness, tremor.	Case reports.[188-190]	**Contraindicated.**
Midazolam	May decrease drug level.	Clinical study with healthy volunteers (extract providing about 45 mg/day of ginsenosides).[191]	**Monitor** (low level of risk).
Sildenafil	Potentiation of drug possible.	Theoretical concern based on *in vitro* studies which show ginseng increases nitric oxide release from corpus cavernosum tissue.[192,193]	**Monitor** (very low level of risk).
Laxative (anthraquinone-containing) herbs eg aloe resin (*Aloe barbadensis, Aloe ferox*), senna (*Cassia* spp.), cascara (*Frangula purshiana, Rhamnus purshianus*), yellow dock (*Rumex crispus*)			
Antiarrhythmic agents	May affect activity if potassium deficiency resulting from long-term laxative abuse is present.	German Commission E and ESCOP recommendation.[12,194]	**Avoid** excessive doses of laxatives. Maintain patients on a high potassium diet.
Cardiac glycosides	May potentiate activity, if potassium deficiency resulting from long-term laxative abuse is present.	German Commission E and ESCOP recommendation.[12,194]	**Monitor** (low level of risk at normal doses).
Potassium-depleting agents eg thiazide diuretics, corticosteroids, licorice root (*Glycyrrhiza glabra*)	May increase potassium depletion.	German Commission E and ESCOP recommendation.[12,194]	**Avoid** excessive doses of laxatives. Maintain patients on a high potassium diet.

Drug	Potential Interaction	Basis of Concern	Recommended Action
Licorice *Glycyrrhiza glabra*			
Antihypertensive medications other than diuretics	General: May decrease effectiveness of drug.	When consumed in high doses, licorice can cause pseudoaldosteronism and high blood pressure. **Herb or Constituent Alone** Hypertension demonstrated in case reports, usually from long-term intake and/or very high dose.[195] Hypokalaemic paralysis reported (184 mg/day of glycyrrhizin for 2 months), although hypertension was mild, possibly due to coexisting sodium wasting related to uropathy from prostate cancer.[196] Clinical studies (up to 200 g/day of licorice): dose-dependent relationship found between licorice and increase in blood pressure, more pronounced effect in hypertensive patients than in normotensive volunteers, adverse effect greater in women, and effect shown for dose as low as 50 g/day of licorice (75 mg/day of glycyrrhetinic acid = 130 mg/day of glycyrrhizin[S]) taken for 2 weeks.[197-199] Other studies show variation of effects on blood pressure (*see note T*) – renal function may be a factor.[200] The increase in blood pressure after taking glycyrrhetinic acid (874 mg/day of glycyrrhizin) was more pronounced in salt-sensitive than salt-resistant volunteers.[201] Clinical study to establish a no-effect level for glycyrrhizin (healthy female volunteers): significant results (e.g. blood pressure, serum potassium and aldosterone) compared to controls found for daily dose of 4 mg/kg (220–332 mg/day) taken for 8 weeks, but no effect at lower doses of 1–2 mg/kg (55–166 mg/day) of glycyrrhizin.[202] **Herb and Drug** Case reports (licorice tea, 3 L/day; patient still hypertensive despite treatment with drugs;[203] decoction of Chinese herbs containing 5 g licorice, taken for 14 days).[204]	**Avoid** long-term use at doses > 100 mg/day glycyrrhizin unless under close supervision.[R] Place patients on a high potassium diet.
	ACE-inhibitor: May mask the development of pseudoaldosteronism.	Case report (patient consumed licorice herbal medicine (200–240 mg/day glycyrrhizin)). Drug dosage was reduced, leading to pseudoaldosteronism.[205] *See note V.*	**Avoid** long-term use at doses > 100 mg/day glycyrrhizin unless under close supervision.[U] Place patients on a high potassium diet.
Cilostazol	May cause hypokalaemia, which can potentiate the toxicity of the drug.	Case report (patient taking 150 mg/day of glycyrrhizin). Serum potassium levels were stable prior to administration of drug.[206]	**Monitor** (medium level of risk). Place patients on a high potassium diet.

Herb-Drug Interaction Chart: General Prescribing Guidelines

- Exercise great caution when prescribing herbs for patients taking drugs with a narrow therapeutic window. These drugs may become dangerously toxic or ineffective with only relatively small changes in their blood concentrations. Examples include digoxin, warfarin, antirejection (immunosuppressive) drugs, many anti-HIV drugs, theophylline, phenytoin and phenobarbital. These patients need to be monitored on a frequent, regular basis.
- Exercise great caution when prescribing herbs for patients taking drugs:
  - if heart, liver, or kidney function is impaired,
  - in elderly patients,
  - in pregnant women,
  - in those who have received an organ transplant,
  - in those with a genetic disorder that disturbs normal biochemical functions.

These patients need to be monitored on a frequent, regular basis.

- Care should be exercised with patients who exhibit long-term use of laxative herbs or potassium-losing diuretics.
- Critical drugs should be taken at different times of the day from herbs (and food) to reduce chemical or pharmacokinetic interactions. They should be separated by at least 1 hour, preferably more.
- Stop all herbs approximately 1 week before surgery. St Mary's thistle may help reduce the toxic after-effects of anaesthetic drugs, so it can be taken up to the day before, and then again, after surgery.
- Carefully monitor the effects of drugs such as antihypertensives and antidiabetic drugs when combining with herbal remedies. The herbs may make them more or less effective. In the ideal situation the dose of the drug could be adjusted.
- Interactions may be dose related for the herb and the drug, for example, St John's wort and digoxin.

Reference and further reading: Mills S, Bone K (eds). *The Essential Guide to Herbal Safety*. Churchill Livingstone, USA, 2005.

Drug	Potential Interaction	Basis of Concern	Recommended Action
Licorice *Glycyrrhiza glabra* (continued)			
Corticosteroids	Cortisol: May potentiate the action (rather than increase level of drug).	Inhibition of the enzyme 11beta-HSD2 by glycyrrhizin leads to an increased level of cortisol in the kidney. This does not happen in the liver. The plasma half-life of cortisol may be prolonged when herb and drug are coadministered, but drug concentrations remain normal, possibly because of a concomitant fall in cortisol production.[207] Prolonged half-life of cortisol may suggest the potential for licorice to prolong clearance (and hence, activity) of the drug. (Studies involving patients with Addison's disease or on haemodialysis are not listed here.) Herb or Constituent Alone Clinical studies with healthy volunteers[198,200,208-214] and patients with essential hypertension[198] (ongoing oral administration): increase in urinary excretion of cortisol, but no significant change in plasma cortisol[198,200,208-214] (although plasma cortisone decreased)[208,209,215] and diurnal variation of plasma cortisol was unaffected.[211] Dosage was high: 100–200 g/day of licorice candy (containing glycyrrhizin or glycyrrhetinic acid equivalent to 262–2440 mg/day of glycyrrhizin[§]),[198,210,211,214] 3.5 g/day of licorice tablets (containing 266 mg/day of glycyrrhizin),[212] 4.8 g/day of licorice extract (containing glycyrrhetinic acid = 587 mg/day of glycyrrhizin),[213] 225 mg/day glycyrrhizin,[208] glycyrrhetinic acid (= 227–874 mg/day glycyrrhizin).[200,209] Clinical study with healthy volunteers and hypertensive patients (single dose, placebo-controlled; oral administration of glycyrrhetinic acid equivalent to 874 mg/day of glycyrrhizin[§]): increased plasma cortisol/cortisone ratio (due mostly to a decrease in plasma cortisone); salivary cortisol increased.[216] Clinical study with healthy volunteers (topical application of a cream containing glycyrrhetinic acid): no effect on plasma cortisol.[217] Herb or Constituent and Drug Clinical studies: increased plasma half-life of cortisol (oral administration of licorice candy (200 g/day, containing 580 mg/day glycyrrhizin) + intravenous cortisol to 7 healthy volunteers;[210] oral administration of glycyrrhetinic acid = 227 mg/day of glycyrrhizin[§] + oral cortisol to 2 volunteers).[218,219] *See also Note W.* *Ex vivo* study (skin samples from healthy volunteers and patients with psoriasis and eczema; glycyrrhetinic acid and drug topically applied): activity of hydrocortisone potentiated by glycyrrhetinic acid.[220]	**Monitor** (very low level of risk at normal doses).
	Prednisolone: May potentiate the action or increase level of drug.	Herbal Constituent and Drug Two clinical studies with healthy volunteers (oral administration of glycyrrhizin or glycyrrhetinic acid;[§] prednisolone administered intravenously): increased drug level[221] and increased prednisolone/prednisone ratio[x] in urine and plasma.[222] Dosage was high: 200 mg/day glycyrrhizin,[221] and 400 mg/day glycyrrhetinic acid (= 700 mg/day glycyrrhizin).[222]	**Monitor** (low level of risk at normal doses) when drug administered intravenously.
Digoxin	May cause hypokalaemia which can potentiate the toxicity of the drug.	Herb Alone Hypokalaemia demonstrated in case reports and clinical studies, usually from long-term intake and/or very high dose, however effect has been demonstrated in sensitive individuals at low doses (licorice containing 100 mg/day of glycyrrhizin). Side effects would be common at 400 mg/day of glycyrrhizin.[195,223,224] Herb and Drug Case report (patient taking herbal laxative containing licorice (1.2 g/day) and rhubarb (*Rheum* spp., 4.8 g/day)). In addition to digoxin, patient was also taking a potassium-depleting diuretic.[225]	**Avoid** long-term use at doses > 100 mg/day glycyrrhizin unless under close supervision.[U] Place patients on a high potassium diet.

Drug	Potential Interaction	Basis of Concern	Recommended Action
Licorice *Glycyrrhiza glabra* (continued)			
Diuretics	Spironolactone (potassium-sparing diuretic): Reduce side effects of drug.	Clinical study: in women with PCOS addition of licorice extract (containing about 463 mg/day glycyrrhizin) reduced side effects related to the diuretic activity of drug.[226]	**Monitor** (low level of risk at normal doses).
	Thiazide and loop (potassium-depleting) diuretics: The combined effect of licorice and the drug could result in excessive potassium loss.[12]	Herb or Constituent Alone Hypokalaemia demonstrated in case reports and clinical studies, usually from long-term intake and/or very high dose,[195,223,224] however effect has been demonstrated in patients for ongoing treatment with herbal medicines containing glycyrrhizin at doses of 80–240 mg/day.[227] Herb and Drug Case reports, usually from long-term intake and/or very high dose,[203,223,228-234] however effect has been demonstrated for ongoing treatment of glycyrrhizin as low as 80 mg/day.[227] Clinical trial (candy containing 40 mg/day of glycyrrhizin): decreased plasma potassium, with 20% of healthy volunteers hypokalaemic in the first week.[235]	**Contraindicated** unless under close supervision at doses > 40 mg/day glycyrrhizin.
Immunosuppressives eg sirolimus	May decrease drug clearance.	Population pharmacokinetic study with 112 Chinese adult renal transplant recipients: clearance of sirolimus decreased in those patients with abnormal ALT values who were taking herbal formulations containing glycyrrhizin (route and dosage unknown).[236]	**Monitor** (medium level of risk) in hepatically-impaired patients.
Midazolam	May decrease drug level.	Clinical study with healthy volunteers (potassium salt of glycyrrhizin, equivalent to 287 mg/day of glycyrrhizin).[237]	**Monitor** (low level of risk at normal doses).
Omeprazole	May decrease drug level.	Clinical study with healthy volunteers (potassium salt of glycyrrhizin, equivalent to 287 mg/day of glycyrrhizin).[238]	**Monitor** (low level of risk at normal doses).
Potassium-depleting drugs other than thiazide and loop diuretics eg corticosteroids, stimulant laxatives	May result in excessive potassium loss.	Herb Alone Hypokalaemia demonstrated in case reports and clinical studies, usually from candy intake (high dose), however effect has been demonstrated in sensitive individuals at low doses (licorice containing 100 mg/day of glycyrrhizin). Side effects would be common at 400 mg/day of glycyrrhizin.[195,223]	**Avoid** long-term use at doses > 100 mg/day glycyrrhizin unless under close supervision.[U] Place patients on a high potassium diet.
Marshmallow Root *Althaea officinalis*			
Prescribed medication	May slow or reduce absorption of drugs.	Theoretical concern based on absorbent properties of marshmallow root.	**Take** at least 2 hours **away** from medication.
Meadowsweet *Filipendula ulmaria* (See also Tannin-containing herbs)			
Warfarin	May potentiate effects of drug.	Theoretical concern based on *in vivo* animal study demonstrating anticoagulant activity (dosage unavailable).[239]	**Monitor** (very low level of risk).
Peppermint *Mentha* x *piperita* (See also Tannin-containing herbs)			
Warfarin	May inhibit effect of drug: decreased INR.	Two case reports (menthol cough drops: 8–10 per day;[240] 6 per day.)[241] Assuming the cough drops contained 5–10 mg of menthol, this is a dosage of about 30–100 mg/day of menthol.	**Monitor** (low level of risk at normal doses of herb).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Phellodendron[c] *Phellodendron amurense*			
Drugs that displace the protein binding of bilirubin eg phenylbutazone	May potentiate effect of drug on displacing bilirubin.	Herb Alone Theoretical concern based on *in vitro* data (displaced bilirubin from albumin) and in animals with high dose of berberine by injection (reduced bilirubin serum protein binding).[3]	**Monitor** (low level of risk).
Polyphenol-containing[y] **or Flavonoid-containing herbs** especially cayenne (*Capsicum annuum*), chamomile (*Matricaria chamomilla*), cocoa, green tea (*Camellia sinensis*), lime flowers (*Tilia cordata*), rosemary (*Rosmarinus officinalis*), St Mary's thistle (*Silybum marianum*), vervain (*Verbena officinalis*) (See also Tannin-containing herbs)			
Immunosuppressives eg cyclosporin	Decreases drug levels, due to impaired absorption or increased metabolism.	Three case reports, in transplant patients (2 L/day of herbal tea; 1-1.5 L/day of chamomile tea; 'large quantities' of fruit tea containing hibiscus extract, and a drink containing black tea). Confirmed by rechallenge in one case, but no signs of rejection.[242]	**Monitor** (medium level of risk). Also advisable not to take simultaneously.
Iron	Inhibition of non-haem iron[z] absorption.	Clinical study (included herb teas (German chamomile, vervain, lime flower, peppermint; all 3 g/300 mL), beverages (eg black tea, coffee, cocoa)): effect dependent on polyphenol content (per serving: 20-400 mg).[243] *See also note AA*. Timing of intake may be important. *See also note BB*. Epidemiological study (United States): 1 cup/week of coffee associated with 1% lower serum ferritin in the elderly.[244] Epidemiological study (China): effect for eating chilli on serum ferritin in women not significant.[245] Mixed results in other studies (healthy volunteers): rosemary (32.7 mg of polyphenols)[246] and cayenne (high dose: 14.2 g, fresh weight,[cc] containing 25 mg polyphenols)[247] caused inhibition; chamomile[248] and turmeric (2.8 g, fresh weight, containing 50 mg polyphenols)[247] did not. *See also note DD*. Results for green tea have been conflicting: two studies found no effect (healthy volunteers and those with anaemia),[249,250] two studies (healthy volunteers) found an effect.[246,251] Drinking green tea (1:100, 1 L/day) lowered serum ferritin in women with low levels of ferritin (< 25 mcg/L) at baseline. No effect in other women or men (vegetarians and omnivores), and no effect on iron status parameters.[252] Two epidemiological studies (French and Japanese populations) found mixed results for serum ferritin and haemoglobin, although risk of iron depletion or anaemia was not increased.[253,254] Clinical study (150–300 mg/day EGCG): decreased absorption in healthy women with low iron stores administered together with iron. Results significant only at higher dosage.[255] Concentrated extract of St Mary's thistle reduced iron absorption in haemochromatosis patients.[256]	In anaemia and where iron supplementation is required, **do not take simultaneously** with meals or iron supplements.
Psyllium *Plantago ovata, Plantago psyllium, Plantago indica* (See also Hypoglycaemic herbs)			
Carbamazepine	Decreases plasma drug level.	Clinical study (psyllium husk),[257] although no adverse effect observed in one case report.[258]	**Take** at least 2 hours **away** from medication.
Digoxin	May decrease absorption of drug.	Decreased bioavailability found for digoxin and 'crude' (undefined) dietary fibre,[259] but no effect was found on digoxin levels in two clinical studies (psyllium husk).[260,261] Slight decrease in absorption (15%) found in healthy volunteers when psyllium husk[ee] (15 g) and digoxin taken concomitantly but when given 30 minutes apart the decrease was much smaller (3%).[262]	**Take** at least 2 hours **away** from medication.
Iron	Inhibition of non-haem iron absorption.	Iron from Test Meal Clinical studies: absorption decreased by 8% (5 g/day for 2 meals, psyllium undefined) in healthy volunteers;[263] no effect overall in type 2 diabetics, although significant differences among participants (14 g/day, for 6 weeks, psyllium undefined).[264] Iron from Diet Clinical studies: no change in serum iron in two trials with patients (6 g/day, for 4-5 weeks, psyllium undefined;[265] maximum tolerated dose, generally less than 25 g/day, for 4 months, psyllium husk);[266] iron absorption decreased in non-anaemic adolescent girls, but iron balance was positive (25 g/day, for 3 weeks, psyllium husk);[267] slight decrease in plasma iron in obese patients without effects on other iron parameters during first period of treatment (30 days), without further modification on long-term treatment of 6 months (6 g/day, psyllium undefined).[268]	In anaemia and where iron supplementation is required, **do not take simultaneously** with meals or iron supplements.
Lithium	May decrease absorption of drug.	Case report (psyllium husk),[269] and clinical study with healthy volunteers (psyllium husk).[270] Hydrophilic psyllium may prevent lithium from ionising.	**Take** at least 2 hours **away** from medication.

Drug	Potential Interaction	Basis of Concern	Recommended Action
Psyllium *Plantago ovata, Plantago psyllium, Plantago indica* (See also Hypoglycaemic herbs) (continued)			
Prescribed medication	May slow or reduce absorption of drugs.	Theoretical concern based on absorbent properties of psyllium. No effect found on absorption or prothrombin time in healthy volunteers when psyllium husk (14 g) and warfarin were taken concomitantly.[271] Case report (adrenal crisis in stable patient with adrenal insufficiency; psyllium coadministered with steroid drugs).[272] In a crossover trial, psyllium husk (6 g) was administered with orlistat[FF] three times a day and found to reduce the subsequent side effects. Single dose of psyllium (12 g) at bedtime was also effective in reducing the side effects.[273]	**Take** at least 2 hours **away** from medication,[GG] except for orlistat which may be taken at the same time.
Thyroxine	May decrease efficacy of drug.	Clinical study: decreased efficacy found in 12 hypothyroid patients consuming dietary fibre (one patient: whole grain cereal + psyllium laxative); some patients stabilised by decreasing or removing the fibre from their diet.[274] Clinical study (healthy volunteers, 3.4 g/day, for 4 days, psyllium husk): decrease in absorption not significant.[275]	**Take** as many hours **apart** as possible. May require dose reduction or cessation of herb.
Saw Palmetto *Serenoa repens*			
Antiplatelet and anticoagulant drugs	May potentiate effect of drug.	Herb Alone Case report (haemorrhage during surgery).[276] Clinical trials: *reduced* intraoperative bleeding from transurethral resection of the prostate procedure with preoperative use of liposterolic extract (2 trials); blood loss not different when compared with drug treatment (1 trial).[277] Herb and Drug Case reports (2): increased INR (warfarin + simvastatin,[278] aspirin + clopidogrel;[279] – in the first case, the interaction may have been due to the vitamin E also present in the preparation;[278] in the second case, six times the usual dose of extract was taken).	**Monitor** (very low level of risk).
Schisandra *Schisandra chinensis*			
Immunosuppressives	May increase drug levels.	Sirolimus: Observations in some liver transplanted recipients. Clinical study: markedly increased drug levels in healthy volunteers[280] given *S. sphenanthera* extract, providing 67.5 mg/day of deoxyschisandrin[HH]. Tacrolimus: Observations in some renal and liver transplanted recipients. Clinical studies: markedly increased drug levels in healthy volunteers[281] and transplant recipients,[282,283] given *S. sphenanthera* extract, providing 67.5 mg/day of deoxyschisandrin[HH].	**Monitor** (low level of risk at normal doses).
Midazolam	May increase drug levels.	Increased drug level (defined as a moderate interaction[E]), increase in sleeping time and increase in mild to moderate adverse effects found in healthy volunteers, given *S. chinensis* extract, providing 22.5 mg/day of deoxyschisandrin[HH].[284]	**Monitor** (medium level of risk at normal doses).
Prescribed medication	May accelerate clearance from the body.	Theoretical concern based on *in vivo* animal studies demonstrating enhanced phase I/II hepatic metabolism.[285,286]	**Monitor** (medium level of risk).
Talinolol	May increase drug levels.	Increased drug level and decreased clearance found in healthy volunteers, given *S. chinensis extract*, providing 33.75 mg/day of deoxyschisandrin[HH].[122]	**Monitor** (low level of risk at normal doses).
Siberian Ginseng *Eleutherococcus senticosus*			
Digoxin	May increase plasma drug levels.	Case report: apparent increase in plasma level, but herb probably interfered with digoxin assay[II] (patient had unchanged ECG despite apparent digoxin concentration of 5.2 nmol/L).[287] In a later clinical trial no effect observed on plasma concentration.[288]	**Monitor** (very low level of risk).
Slippery Elm Bark *Ulmus rubra*			
Prescribed medication	May slow or reduce absorption of drugs.	Theoretical concern based on absorbent properties of slippery elm.	**Take** at least 2 hours **away** from medication.

Drug	Potential Interaction	Basis of Concern	Recommended Action
St John's Wort[KK] *Hypericum perforatum* (See also Tannin-containing herbs)			
Amitriptyline	Decreases drug levels.[289]	Clinical study.	**Monitor** (medium level of risk).
Anticonvulsants eg carbamazepine, mephenytoin, phenobarbitone, phenytoin	May decrease drug levels via CYP induction.[290-292]	Theoretical concern. An open clinical trial demonstrated no effect on carbamazepine pharmacokinetics in healthy volunteers.[293] Case report: increase in seizures in patient taking several antiepileptic drugs, two of which are not metabolised by cytochrome P450.[294] Clinical study (healthy volunteers; clinical significance unclear): increased excretion of a mephenytoin metabolite in extensive metabolizers, but not in poor metabolizers.[295] *See note LL.*	**Monitor** (low level of risk).
Antihistamine eg fexofenadine	Decreases drug levels.	Clinical studies.[296,297]	**Monitor** (medium level of risk).
Antiplatelet and anticoagulant drugs	Clopidogrel: May potentiate effects of drug.	Clinical studies: increased responsiveness (decreased platelet aggregation or improved residual platelet reactivity) in hyporesponsive volunteers and patients,[298-301] possibly via the formation of the active metabolite (CYP3A4 activity was increased), thus providing a beneficial effect in these patients. This is a complex situation, with the meaning of clopidogrel resistance/hyporesponsiveness debated.[298,302]	In patients with known clopidogrel resistance: **Monitor** (medium level of risk). In other patients: **Monitor** (risk is unknown).
	Phenprocoumon: Decreases plasma drug levels.	Clinical study.[303]	**Contraindicated.**
	Warfarin: Decreases drug levels and INR.	Case reports (decreased INR (nine cases), increased INR (three cases)).[304-306] Clinical study with healthy volunteers (decreased drug level and INR).[177]	**Contraindicated.**
Benzodiazepines	Decreases drug levels, and is probably dependent upon the hyperforin content.[307]	Alprazolam: Mixed results for drug levels in two clinical studies (similarly low amount of hyperforin, ~4 mg/day) – no effect (dried herb equivalent: 1.1 g/day)[308] and decrease.[309]	**Monitor** (medium level of risk).
		Midazolam: Clinical studies, effect not regarded as clinically relevant for low (< 1 mg/day) hyperforin extracts.[297,307,310,311]	Hyperforin-rich extracts: **Monitor** (medium level of risk). Low-hyperforin extracts: **Monitor** (low level of risk).
		Quazepam: Decreased drug levels, but no effect on pharmacodynamics (sedation).[312]	**Monitor** (low level of risk).
Calcium channel antagonists	Decreases drug levels.	Nifedipine: Clinical studies.[117,313] Verapamil: Clinical study.[314]	**Contraindicated.**
Cancer chemotherapeutic drugs eg irinotecan, imatinib	Decreases drug levels.	Clinical studies.[315-318]	**Contraindicated.**
Clozapine	Decreases drug levels.	Case report.[319]	**Contraindicated.**
Digoxin	Decreases drug levels.	Clinical studies (several studies showed decrease, one study showed no effect)[308,320-322] but effect is dependent upon dose of herb and the hyperforin content.[322]	**Contraindicated** at doses equivalent to > 1 g/day dried herb, especially for high-hyperforin extracts.
Docetaxel (intravenous)	May decrease effectiveness of drug.	Clinical study with cancer patients:[323] effect on pharmacokinetics probably not clinically relevant (eg plasma levels decreased by only 6%); drug-induced side effects were also reduced. *See also Note MM.*	**Contraindicated.**
Finasteride	May decrease drug levels.	Clinical study with healthy volunteers.[324] Case report: PSA level elevated (due to decreased efficacy of drug?) in patient with benign prostatic hyperplasia.[325]	**Contraindicated.**

Drug	Potential Interaction	Basis of Concern	Recommended Action
St John's Wort[KK] *Hypericum perforatum* (See also Tannin-containing herbs) (continued)			
HIV non-nucleoside transcriptase inhibitors eg nevirapine	Decreases drug levels.	Case report.[326]	**Contraindicated.**
HIV protease inhibitors eg indinavir	Decreases drug levels.	Clinical study.[327]	**Contraindicated.**
Hypoglycaemic drugs	Gliclazide: May reduce efficacy of drug by increased clearance.	Clinical study with healthy volunteers, but glucose and insulin response to glucose loading were unchanged.[329]	**Monitor** (low level of risk).
	Repaglinide: May alter metabolism of drug.	Clinical study with healthy volunteers: no effect, and glucose and insulin response to glucose loading were unchanged.[329]	**Monitor** (very low level of risk).
	Tolbutamide: May affect blood glucose.	Two clinical studies (healthy volunteers): no effect on pharmacokinetics,[308,310] but there was an increased incidence of hypoglycaemia in the trial using hyperforin-rich extract (33 mg/day).[310]	**Monitor** (low level of risk).
Immunosuppressives	Decreases drug levels.	Cyclosporin: Case reports,[330-338] case series,[339,340] clinical studies.[297,341] Interaction is dependent upon the hyperforin content.[333,341] Tacrolimus: Case report and clinical studies.[342-344]	**Contraindicated** especially for high-hyperforin extracts.
Ivabradine	May decrease drug levels.	Clinical trial with healthy volunteers. No pharmacodynamic effect was observed.[345]	**Monitor** (medium level of risk).
S-**Ketamine** (oral)	May decrease drug levels.	Clinical study with healthy volunteers. No pharmacodynamic effect was observed (eg analgesic effect not altered).[346]	**Monitor** (medium level of risk).
Methadone	Decreases drug levels, possibly inducing withdrawal symptoms.	Case reports.[347]	**Contraindicated.**
Methylphenidate	May decrease efficacy.	Case report,[348] but clinical significance unclear.	**Monitor** (low level of risk).
Morphine (oral)	May potentiate effects of drug.	Clinical study (healthy volunteers):[349] pain scores were decreased when morphine co-administered with standardised extract at a dose of herb below those used to obtain an antidepressant or analgesic effect. The effect was dependent hypericin content, but not hyperforin. The authors suggest the herb may be able to decrease the dose of morphine while obtaining the same analgesic effect.	**Monitor** (medium level of risk).
Omeprazole	May decrease drug levels.	Clinical trial.[350]	**Monitor** (low level of risk).
Oral contraceptives	May increase metabolism and reduce effectiveness of drug.	Breakthrough bleeding reported which was attributed to increased metabolism of drug.[304,330] Clinical significance unclear. Cases of unwanted pregnancies have been reported.[351-353] Contradictory results for effect on bioavailability, hormone levels and ovulation demonstrated in three clinical studies, although some breakthrough bleeding occurred.[354-356] In one clinical trial an extract low in hyperforin did not affect plasma contraceptive drug levels or cause breakthrough bleeding.[357] Clinical trial: clearance of levonorgestrel at emergency contraceptive doses increased (not statistically significant).[358] Clinical study: antiandrogenic effect of contraceptive not affected.[359]	Hyperforin-rich extracts: **Monitor** (medium level of risk). Low-hyperforin extracts: **Monitor** (very low level of risk).
Oxycodone	Decreases drug levels.	Clinical trial with healthy volunteers.[360]	**Monitor** (medium level of risk).
SSRIs eg paroxetine, trazodone, sertraline **and other serotonergic agents** eg nefazodone, venlafaxine	Potentiation effects possible in regard to serotonin levels.	Case reports: clinical significance unclear.[361-366]	**Monitor** (very low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
St John's Wort[KK] *Hypericum perforatum* (See also Tannin-containing herbs) **(continued)**			
Statin drugs	May decrease effect and/or drug levels.	Atorvastatin: Clinical study, serum LDL-cholesterol increased by 0.32 mmol/L which corresponds to a decrease in effect of drug in patients by about 30%. Serum total cholesterol was also increased.[367] Pravastatin: Clinical study, no effect on plasma level in healthy volunteers.[368] Rosuvastatin: Case report.[369] Simvastatin: Two clinical studies, decrease in drug levels in healthy volunteers,[368] and small increases in serum total cholesterol and LDL-cholesterol in patients.[370]	**Monitor** blood cholesterol regularly (medium level of risk).
Talinolol	May decrease drug levels.	Clinical study with healthy volunteers.[371]	**Monitor** (medium level of risk).
Theophylline	May decrease drug levels.	Case report.[372] No effect observed in clinical study.[373]	**Monitor** (low level of risk).
Voriconazole	Decreases drug levels.	Clinical study.[374]	**Monitor** (medium level of risk).
Zolpidem	May decrease drug levels (but with wide interindividual variability).[NN]	Clinical study (healthy volunteers).[375]	**Monitor** (low level of risk).
St Mary's Thistle[K] *Silybum marianum* (See also Polyphenol-containing herbs)			
Hypoglycaemic drugs including insulin	May improve insulin sensitivity.	Controlled trials: improved glycaemic control and reduced insulin requirements in patients with type 2 diabetes and cirrhosis (silymarin: 600 mg/day),[376] although insulin requirements unchanged in another trial (silymarin: 200 mg/day);[377] improved glycaemic control in diabetics treated with hypoglycaemic drugs (silymarin: 200 and 600 mg/day),[378,379] improved blood glucose, blood insulin and insulin resistance in PCOS patients treated with metformin (silymarin: 750 mg/day);[380] but no effect on glucose metabolism in NAFLD patients including those with insulin resistance (silymarin: 280 and 600 mg/day).[381,382]	Prescribe cautiously and monitor blood sugar regularly. **Warn** patient about possible hypoglycaemic effects. **Reduce** drug if necessary in conjunction with prescribing physician.
Immunosuppressives eg sirolimus	May decrease drug clearance.	Population pharmacokinetic study with 112 Chinese adult renal transplant recipients: clearance of sirolimus decreased in those patients with abnormal ALT values who were taking silymarin formulations (route and dosage unknown).[236]	**Monitor** (medium level of risk) in hepatically-impaired patients.
Losartan	May reduce efficacy of drug by inhibiting metabolism.	Clinical study (healthy volunteers; clinical significance unclear): inhibited metabolism of drug; the inhibition was greater in those of a particular CYP2C9 genotype (silymarin: 420 mg/day).[383] *See note PP.*	**Monitor** (low level of risk).
Metronidazole	May decrease absorption of drug, by increasing clearance.	Clinical study with healthy volunteers (silymarin: 140 mg/day).[384]	**Monitor** (medium level of risk).
Nifedipine	May delay the absorption rate of drug.	Clinical study with healthy volunteers (silymarin: 280 mg/day), but bioavailability unchanged.[385]	**Monitor** (low level of risk).
Ornidazole	May increase drug levels.	Clinical study with healthy volunteers (silymarin: 140 mg/day).[386]	**Monitor** (medium level of risk).
Talinolol	May increase drug levels.	Clinical study with healthy volunteers (silymarin: 420 mg/day).[387]	**Monitor** (low level of risk).

Drug	Potential Interaction	Basis of Concern	Recommended Action
Tannin-containing or OPC-containing herbs eg agrimony (*Agrimonia eupatoria*), bearberry (*Arctostaphylos uva-ursi*), grape seed extract (*Vitis vinifera*), green tea (*Camellia sinensis*), hawthorn (*Crataegus* spp.), lemon balm (*Melissa officinalis*), meadowsweet (*Filipendula ulmaria*), peppermint (*Mentha* x *piperita*), Pelargonium (*Pelargonium sidoides*), pine bark (*Pinus massoniana*), raspberry leaf (*Rubus idaeus*), sage (*Salvia fruticosa*), St John's wort (*Hypericum perforatum*), willow bark (*Salix* spp.), willow herb (*Epilobium parviflorum*) (See also Polyphenol-containing herbs)			
Minerals, especially iron	Iron: May reduce absorption of non-haem iron[z] from food.	Clinical studies in healthy volunteers, administration during or immediately following the meal[243,388-395] (black tea, typical strength: 0.8–3.3 g/100 mL;[243,388-394] sorghum[QQ] (0.15% tannins)[393]), and in women with iron deficiency anaemia[396] (black tea: 1–2 x 150 mL of 1:100 infusion containing 78 mg of tannins per 150 mL).[396] Iron absorption reduced to a greater extent in those with iron deficiency anaemia (IDA).[396] However, the results from single test meals may exaggerate the effect of iron inhibitors and enhancers.[397] Effects were not significant in a 14-day study.[251] Cases of IDA resistant to treatment: heavy black tea drinkers (2 cases, 1.5–2 L/day).[398,399] Epidemiological studies (12, to 2002) found mixed results, but some evidence of an association between drinking black tea and poor iron status.[397] Clinical study in patients with haemochromatosis (black tea: 250 mL with meal).[400]	**Take** at least 2 hours **away** from food or medication.
	Zinc: May reduce absorption from food.	Clinical studies with healthy volunteers: results conflicting for effect on zinc (undefined tea,[401] black tea[251] consumed at or immediately after food).	**Take** at least 2 hours **away** from food or medication.
Turmeric[C] *Curcuma longa*			
Talinolol	May decrease drug levels.	Clinical study with healthy volunteers (300 mg/day of curcuminoids).[402]	**Monitor** at high doses (≥ 300 mg/day curcumin, low level of risk).
Valerians Mexican Valerian (*Valeriana edulis*), Valerian (*Valeriana officinalis*)			
CNS depressants or alcohol	May potentiate effects of drug.	Theoretical concern expressed by US Pharmacopeial Convention.[403] However a clinical study found no potentiation with alcohol.[404] Case report of adverse effect with benzodiazepine drug (lorazepam)[405] – herb dosage undefined but likely high (tablet contained valerian and passionflower (*Passiflora incarnata*)). Alprazolam: Clinical study in healthy volunteers found no effect on drug levels (extract provided 11 mg/day total valerenic acids).[406]	**Monitor** (very low level of risk).
Willow Bark *Salix alba, Salix daphnoides, Salix purpurea, Salix fragilis* (See also Tannin-containing herbs)			
Warfarin	May potentiate effects of drug.	Herb Alone Clinical study observed very mild but statistically significant antiplatelet activity (extract containing 240 mg/day of salicin).[407]	**Monitor** (low level of risk).

CODE FOR RECOMMENDED ACTION

Contraindicated: Do not prescribe the indicated herb.

Monitor: Can prescribe the indicated herb but maintain close contact and review the patient's status on a regular basis. Note that where the risk is assessed as medium, self-prescription of the herb in conjunction with the drug is not advisable.

ABBREVIATIONS

ACE: angiotensin-converting enzyme; **ALT:** alanine transaminase, also known as glutamic pyruvic transaminase (GPT); **AMP:** adenosine monophosphate; **APTT:** activated partial thromboplastin time; **AUC:** area under the plasma/serum concentration-time curve (measures extent of absorption); **CNS:** central nervous system; **CYP:** cytochrome P450; **ECG:** electrocardiogram/graph; **EGCG:** epigallocatechin gallate; **GAS:** ginseng abuse syndrome; **HIV:** human immunodeficiency virus; **11beta-HSD2:** 11beta-hydroxysteroid dehydrogenase type 2; **IDA:** iron deficiency anaemia; **INR:** international normalised ratio; **LDL:** low density lipoprotein; **NAFLD:** nonalcoholic fatty liver disease; **OPC:** oligomeric procyanidin; **PCOS:** polycystic ovary syndrome; **PSA:** prostate specific antigen; **PT:** prothrombin time; **SSRI:** selective serotonin reuptake inhibitors; **tds:** three times per day; **>:** greater than; **≥:** greater than or equal to; **<:** less than.

NOTES

* This chart contains information the authors believe to be reliable or which has received considerable attention as potential issues. However, many theoretical concerns expressed by other authors have not been included. Due to the focus on safety, positive interactions between herbs and drugs, and the effect of drugs on the bioavailability of herbs are generally not included.

A. Research paper describes administration of Scutellaria radix. Trial authors confirm this was root of Baical skullcap (*Scutellaria baicalensis*).[408]

B. Analysis of Baical skullcap root samples from Japan found the baicalin content varied from 3.5 to 12%. For a dose of 150 mg/day of baicalin, 1.2–4.3 g/day of dried root would be required.[409]

C. Information is provided for herbs containing standard levels of active constituents. See elsewhere for information on extracts containing very high levels of active constituents such as berberine and curcumin.

D. Single-strength (freshly squeezed, 100%) cranberry juice is highly acidic and astringent, making it unpalatable. For this reason, cranberry juice is usually diluted and sweetened (often known as cranberry juice drink). Cranberry juice cocktail usually contains 25% cranberry juice, although can be up to 35%. Cranberry juice drinks contain about 10% cranberry juice. Cranberry sauce is about half the strength of cranberry juice cocktail, about the same strength as juice drinks. Cranberry juice can be concentrated to a dry powder (unsweetened and usually up to 25:1) and used in tablets and capsules. Juices can be prepared by diluting juice concentrates yielding a concentrated juice (eg double-strength juice, at twice the strength of single-strength, squeezed juice). It is likely that unless defined, cranberry juice referred to in case reports and clinical studies is juice drink containing around 10% cranberry juice.

E. Refer to Prescribing Guidelines & Assessment of Risk (available on www.mediherb.com.au) for definition of the extent of this interaction.

F. The cranberry 'juice' administered was similar in concentration to a reference cranberry 'juice' containing about 25% cranberry juice,[410] but with a higher concentration of anthocyanins, and lower in catechins and organic acids.
See also note D.

G No effect overall when midazolam was administered orally: oral clearance and area under the drug concentration-time curve were unchanged.

H. These four trials used tablets containing a concentrated, standardised extract. A dosage of 900 mg/day of dry extract was equivalent to about 2.7 g/day of fresh garlic,[411] and was said to provide 12 mg/day of alliin,[58,66] although there is some doubt as to the amount of allicin released from this brand of tablet from around 1995 to 2000.[412]

J. There may have been variation in patients' interpretations (of bleeding) and the significant association between ginger use and bleeding was based on 7 self-reported events in 25 users.[413]

K. Information is provided for specialised and/or concentrated extract, rather than galenical form of herb.

L. Ginkgotoxin (4'-O-methylpyridoxine) is present in substantial amounts in Ginkgo seed, and convulsions arising from ingestion of Ginkgo seed have been documented in Japan (infants are particularly vulnerable). Ginkgotoxin is known to inhibit vitamin B6 phosphorylation, which may lead to increased neuronal excitability.[414] Poisoning by ginkgotoxin can be counteracted by vitamin B6,[414] in cases of poisoning it is administered by intravenous injection.[415,416] Ginkgotoxin is present in very small amounts in standardised Ginkgo leaf extracts,[417] but is below the detection limits in human plasma after oral doses (240 mg of 50:1 extract, equivalent to 12 g of dried leaf).[418] According to the manufacturer, despite the extensive use of this special extract (more than 150 million daily doses per year for more than two decades) no cases of epileptic seizure have been attributed to this extract.[418] (Ginkgo preparations associated with the above case reports were undefined.) Strictly speaking this is a potential adverse effect (rather than a herb-drug interaction) as there is no pharmacokinetic data indicating an interaction for coadministration of Ginkgo and anticonvulsants in humans. An interaction is suggested though, because Ginkgo has been found to induce CYP2C19 activity (see entry for omeprazole), an enzyme involved in the metabolism of some anticonvulsants.

M. Analysis of over 320 000 patients in a German adverse drug reaction reporting system (1999-2002) found no increase in prevalence of bleeding during Ginkgo intake compared to periods without Ginkgo in those taking anticoagulant or antiplatelet medication.[419] In a trial involving 3069 healthy volunteers treated for an average of 6.1 years, there were no statistically significant differences between placebo and Ginkgo in the rate of major bleeding or the incidence of bleeding in individuals taking aspirin. (Compliance during the trial was however low (at the end of the trial, about 60% were taking Ginkgo/placebo).[420]) In Korea, Ginkgo extract is administered with ticlopidine for the prevention of ischaemic stroke or acute coronary syndrome.[421]

N. The *in vitro* reduction by EGCG was overcome when the concentration of the drug was increased (to a level expected clinically ie in plasma from the standard drug dose).[422] A further *in vivo* study found no reduction in the activity of the drug (when EGCG administered by injection to achieve plasma levels of 11–16 microM).[125]

P The *in vitro* study found a pronounced reduction in the cytotoxic effect of the drug for a concentration of 2.5–5 microM of EGCG, and when applied as green tea polyphenols a very substantial effect occurred at a EGCG concentration of 1 microM (the other polyphenols may contribute to the activity).[124] A pharmacokinetic study with healthy volunteers found a EGCG plasma concentration of 0.7 microM after a dose of 580 mg of EGCG, and a EGCG plasma concentration of 0.5 microM after a dose of 1 g of green tea polyphenols.[423]

Q. Better gastric tolerance to metformin was noted in the psyllium group of one trial.[149]

R. A better design would have volunteers take warfarin alone for a period long enough to allow the drug to reach its maximum effect (about 3–5 days) before adding the herb.

S. Glycyrrhetinic acid, is the aglycone of glycyrrhizin. Glycyrrhizin, is the glycoside and contains the aglycone (glycyrrhetinic acid) and a sugar unit.

T. No effect on blood pressure in healthy volunteers in two studies (130 mg/day of glycyrrhetinic acid = 227 mg/day of glycyrrhizin, for 14 days;[200] licorice tablets (266 mg/day of glycyrrhizin) for 56 days);[212] including where plasma renin levels were high (3.1 ng/mL/h),[212] but in another study, blood pressure increased in healthy volunteers taking 546 mg/day of glycyrrhizin for 4 weeks, only for those with plasma renin activity greater than 1.5 ng/mL/h.[424]

U. This is a guide, based on a recommendation from the German Commission E for long-term consumption of licorice as a flavouring. Glycyrrhizin is also known as glycyrrhizinic acid and glycyrrhizic acid.

V. ACE-inhibitors cause mild natriuresis (an increase in sodium excretion in the urine) and occasionally hyperkalaemia. The mechanism of the interaction is not known, although it may involve opposing effects on 11beta-hydroxysteroid dehydrogenase type 2 (glycyrrhizin inhibiting, ACE-inhibitor promoting), thus affecting mineralocorticoid receptor activity. Reduction of drug dosage revealed the existing hypokalaemia caused by this dosage of glycyrrhizin.

W. Maximum plasma cortisol (exogenous) was not increased in one volunteer;[219] in the other, plasma (exogenous) cortisone/cortisol ratio decreased,[218] suggesting increased (exogenous) cortisol while (endogenous) cortisol decreased (although statistical and clinical significance is unknown, and may have been within the normal range). In these studies isotope-labelled cortisol was administered, which allowed exogenous and endogenous cortisol to be measured.

X. A higher prednisolone/prednisone ratio indicates decreased conversion of prednisolone (active) to prednisone (inactive).

Y. The word tannin has a long established and extensive usage although it is considered in more recent years to lack precision. Polyphenol is the preferred term when considering the properties at a molecular level. Plant polyphenols are broadly divisible into proanthocyanidins (condensed tannins) and polymers of esters based on gallic and/or hexahydroxydiphenic acid and their derivatives (hydrolyzable tannins).[425] The terms 'tannin' and 'polyphenol' are sometimes used interchangeably. For example, the results of a clinical study are described: "polyphenols present in tea and coffee inhibited iron absorption in a dose-dependent manner". The 'polyphenol' content was measured using a spectrophotometric method for the determination of "tannins and other polyphenolics".[395] Depending on the analytical method used, it is possible that the polyphenol content may actually be the content of tannins or tannins + polyphenols.[426] It is recommended that both sections of this chart be considered: Polyphenol-containing or Flavonoid-containing herbs, and Tannin-containing or OPC-containing herbs.

Z. Haem iron is derived from haemoglobin and myoglobin mainly in meat products. Non-haem iron is derived mainly from cereals, vegetables and fruits.

AA. At an identical concentration of total polyphenols, black tea was more inhibitory than all the herb teas excluding peppermint: black tea was of equal inhibition to peppermint tea.[243] The type of polyphenols present, as well as the concentration, may affect iron absorption.

BB. Another clinical study also found a dose-dependent effect, and the reduced absorption was most marked when coffee was taken with the meal or one hour later. No decrease in iron absorption occurred when coffee was consumed one hour before the meal.[394]

CC. Administered in freeze-dried form (4.2 g), which would be expected to have a lower inhibitory effect than with the use of fresh chilli, as freeze drying probably decreased the ascorbic acid content (ascorbic acid enhances iron absorption).[247]

DD. The different results for cayenne and turmeric under the same experimental conditions, suggest it is not only the quantity of polyphenol present that determines the inhibition, but also for example, the structure of the polyphenol (and hence mechanism of iron binding).[247]

EE. Plant part defined in other publication.[427]

FF. Orlistat inhibits gastric and pancreatic lipases in the lumen of the stomach and small intestine which leads to decreased absorption of dietary fat, and the subsequent excretion of the unabsorbed fats in faeces. No systemic absorption is required to exert its therapeutic effect.

GG. This procedure has been adopted in clinical trials where hypocholesterolaemic drugs (statins) were coadministered.[428,429]

HH. Fructus Schisandra is defined as the fruit of *Schisandra chinensis* or *Schisandra sphenanthera* in traditional Chinese medicine. The major constituents are dibenzocyclooctene lignans. Several factors including harvest season, origin of herb and extraction solvent affect the levels of the individual lignans. Aqueous or ethanolic extracts of *S. chinensis* are not likely to contain more than 2.5 mg/g of deoxyschisandrin.[430,431] A maximum dose of *S. chinensis* extract equivalent to 4 g/day, would provide 10 mg/day of deoxyschisandrin.

JJ Eleutherosides (from Siberian ginseng) and ginsenosides (from Korean ginseng) have some structural similarity with digoxin. Because of this similarity interference with serum digoxin measurements is possible, as confirmed when mice fed these herbs demonstrated digoxin activity in their serum. More specific assays are able to negate the interference.[432]

KK. As noted for several drugs, the hyperforin content of the St John's wort preparation, as well as the dosage of herb, affects the extent of the interaction. All types of preparations can contain hyperforin, including dry extracts used in tablets and capsules. Hyperforin is however, unstable – particularly when in solution.[433] Tinctures and liquid extracts made using a standard ethanol content (45%) contain negligible amounts of hyperforin. Liquid extracts using a higher ethanol content (such as 60%) will contain a higher initial amount of hyperforin than standard liquid extracts. Over time the hyperforin content is substantially reduced and after a few months tinctures and liquid extracts contain no hyperforin.[434]

LL. Genetic polymorphisms are important in determining differences in the response to drugs, and may influence interactions. There are many genetic variants of the CYP genes, including the CYP2C19 gene. Phenotypes of CYP2C19 have been classified functionally as extensive metabolizers and poor metabolizers, the latter having a deficiency of CYP2C19 activity.[238,435]

MM. Two of the 10 patients with the highest hyperforin levels prior to drug administration showed the greatest decrease in the AUC_∞ of docetaxel, for the other patients, no apparent correlation between hyperforin levels and the docetaxel AUC_∞ was observed.

NN. Of the 14 volunteers, in three, a small increase in AUC was observed after administration of St John's wort.

PP. Several variants of CYP2C9 have been identified in humans: the most important mutations are CYP2C9*2 and CYP2C9*3. The CYP2C9*3 variant shows decreased metabolic activity for many drugs metabolised by CYP2C9. CYP2C9 is the main enzyme responsible for transforming losartan to its active metabolite.

QQ. Sorghum also contains phytate. Both phytate and polyphenol inhibit nutrients such as iron.[436,437]

REFERENCES

Braun L. *Herb Drug Interaction Guide for Pharmacists*. FH Faulding, August 2000
Fugh-Berman A. *Lancet* 2000; **355**(9198): 134-138

1 Yi SJ, Cho JY, Lim KS et al. *Basic Clin Pharmacol Toxicol* 2009; **105**(4): 249-256
2 Fan L, Zhang W, Guo D et al. *Clin Pharmacol Ther* 2008; **83**(3): 471-476
3 Chan E. *Biol Neonate* 1993; **63**(4): 201-208
4 Pulliero G, Montin S, Bettini V et al. *Fitoterapia* 1989; **60**(1): 69-75
5 Duterte M, Waugh S, Thanawala R. *Am J Gastroenterol* 2007; **102**(Suppl 2): S350
6 Neumann L. *Klin Montbl Augenheilkd* 1973; **163**(1): 96-103
7 Aktas C, Senkal V, Sarikaya S et al. *Turk J Geriatr* 2011; **14**(1): 79-81
8 Patel NM, Derkits RM. *J Pharm Pract* 2007; **20**(4): 341-346
9 de Smet PAGM, Keller K, Hansel R et al (eds). *Adverse Effects of Herbal Drugs*, Volume 3. Springer-Verlag, Berlin, 1997.
10 Miller LG. *Arch Intern Med* 1998; **158**(20): 2200-2211
11 de Smet PAGM, Keller K, Hansel R et al (eds). *Adverse Effects of Herbal Drugs*, Volume 2. Springer-Verlag, Berlin, 1993.
12 Blumenthal M et al (eds). *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines*. American Botanical Council, Austin, 1998.
13 Lopez Galera RM, Ribera Pascuet E, Esteban Mur JI et al. *Eur J Clin Pharmacol* 2008; **64**(12): 1235-1236
14 Hakas JF. *Ann Allergy* 1990; **65**(4): 322-323
15 Bouraoui A, Toum A, Bouchoucha S et al. *Therapie* 1986; **41**(6): 467-471
16 Moses G. *Australian Prescriber* 2001; **24**(1): 6
17 de Souza NJ. *J Ethnopharmacol* 1993; **38**(2-3): 177-180
18 Yokotani K, Chiba T, Sato Y et al. *J Pharm Pharmacol* 2012; **64**(12): 1793-1801
19 de Souza NJ, Dohadwalla AN, Reden J. *Med Res Rev* 1983; **3**(2): 201-219
20 Dubey MP, Srimal RC, Nityanand S et al. *J Ethnopharmacol* 1981; **3**(1): 1-13
21 Sabinsa Corporation. *ForsLean® Product Information*. Available from www.forslean.com. Accessed November 2004.
22 Henderson S, Magu B, Rasmussen C et al. *J Int Soc Sports Nutr* 2005; **2**(2): 54-62
23 Seamon KB, Daly JW. *J Cyclic Nucleotide Res* 1981; **7**(4): 201-224
24 Ngo N, Yan Z, Graf TN et al. *Drug Metab Dispos* 2009; **37**(3): 514-522
25 Lilja JJ, Backman JT, Neuvonen PJ. *Clin Pharmacol Ther* 2007; **81**(6): 833-839
26 Goldenberg G, Khan R, Bharathan T. *Clin Geriatrics* 2012; **20**(8): 38-42
27 Medicines and Healthcare Products Regulatory Agency, Committee on Safety of Medicines. *Current Problems in Pharmacovigilance*, Vol 30, October 2004, p 10.
28 Rindone JP, Murphy TW. *Am J Ther* 2006; **13**(3): 283-284
29 Sylvan L, Justice NP. *Am Fam Physician* 2005; **72**(6): 1000
30 Paeng CH, Sprague M, Jackevicius CA. *Clin Ther* 2007; **29**(8): 1730-1735
31 Welch JM, Forster K. *J Pharm Technol* 2007; **23**(2): 104-107
32 Mergenhagen KA, Sherman O. *Am J Health Syst Pharm* 2008; **65**(22): 2113-2116
33 Griffiths AP, Beddall A, Pegler S. *J R Soc Promot Health* 2008; **128**(6): 324-326
34 Hamann GL, Campbell JD, George CM. *Ann Pharmacother* 2011; **45**(3): e17
35 Haber SL, Cauthon KA, Raney EC. *Consult Pharm* 2012; **27**(1): 58-65
36 Li Z, Seeram NP, Carpenter CL et al. *J Am Diet Assoc* 2006; **106**(12): 2057-2061
37 Ansell J, McDonough M, Zhao Y et al. *J Clin Pharmacol* 2009; **49**(7): 824-830
38 Mohammed Abdul MI, Jiang X, Williams KM et al. *Br J Pharmacol* 2008; **154**(8): 1691-1700
39 Mellen CK, Ford M, Rindone JP. *Br J Clin Pharmacol* 2010; **70**(1): 139-142
40 Qiu F, Wang J, Zhang R et al. *Brit J Clin Pharmacol* 2010; **69**(6): 656-662
41 Tam LS, Chan TYK, Leung WK et al. *Aust NZ J Med* 1995; **25**(3): 258
42 Yu CM, Chan JCN, Sanderson JE. *J Intern Med* 1997; **241**(4): 337-339
43 Izzat MB, Yim APC, El-Zufari MH. *Ann Thorac Surg* 1998; **66**(3): 941-942
44 Shaw D, Leon C, Kolev S et al. *Drug Saf* 1997; **17**(5): 342-356
45 Page RL, Lawrence JD. *Pharmacotherapy* 1999; **19**(7): 870-876
46 Ellis GR, Stephens MR. *BMJ* 1999; **319**(7210): 650
47 Moltó J, Valle M, Miranda C et al. *Antimicrob Agents Chemother* 2012; **56**(10): 5328-5331
48 Moltó J, Valle M, Miranda C et al. *Antimicrob Agents Chemother* 2011; **55**(1): 326-330
49 Mills S, Bone K. *Principles and Practice of Phytotherapy: Modern Herbal Medicine*. Churchill Livingstone, Edinburgh, 2000.
50 Newall CA, Anderson LA, Phillipson JD. *Herbal Medicines – A Guide for Health-Care Professionals*. Pharmaceutical Press, London, 1996.
51 Gorski JC, Huang SM, Pinto A et al. *Clin Pharmacol Ther* 2004; **75**(1): 89-100
52 Mills S, Bone K. *The Essential Guide to Herbal Safety*. Churchill Livingstone, USA, 2005.
53 Rose KD, Croissant PD, Parliament CF et al. *Neurosurgery* 1990; **26**(5): 880-882
54 Burnham BE. *Plast Reconstr Surg* 1995; **95**(1): 213
55 German K, Kumar U, Blackford HN. *Br J Urol* 1995; **76**(4): 518
56 Carden SM, Good WV, Carden PA et al. *Clin Experiment Ophthalmol* 2002; **30**(4): 303-304
57 Manoharan A, Gemmell R, Hartwell T. *Am J Hematol* 2006; **81**(9): 676-683
58 Legnani C, Frascaro M, Guazzaloca G et al. *Arzneim Forsch* 1993; **43**(2): 119-122
59 Kiesewetter H, Jung F, Jung EM et al. *Eur J Clin Pharmacol* 1993; **45**(4): 333-336
60 Kiesewetter H, Jung F, Jung EM et al. *Clin Investig* 1993; **71**(5): 383-386
61 Harenberg J, Giese C, Zimmermann R. *Atherosclerosis* 1988; **74**(3): 247-249
62 Ali M, Thomson M. *Prostaglandins Leukot Essent Fatty Acids* 1995; **53**(3): 211-212
63 Luley C, Lehmann-Leo W, Moller B et al. *Arzneim Forsch* 1986; **36**(4): 766-768
64 Scharbert G, Kalb ML, Duris M et al. *Anesth Analg* 2007; **105**(5): 1214-1218
65 Jain RC. *Am J Clin Nutr* 1977; **30**(9): 1380-1381
66 Lawson LD. *FASEB J* 2007; **21**(6): A1126
67 Gadkari JV, Joshi VD. *J Postgrad Med* 1991; **37**(3): 128-131
68 Sunter W. *Pharm J* 1991; **246**: 722
69 Piscitelli SC, Burstein AH, Welden N et al. *Clin Infect Dis* 2002; **34**(2): 234-238
70 Hajda J, Rentsch KM, Gubler C et al. *Eur J Pharm Sci* 2010; **41**(5): 729-735
71 Duncan A, Mills J. *AIDS* 2013; **27**(8): 1361-1362
72 Kruth P, Brosi E, Fux R et al. *Ann Pharmacother* 2004; **38**(2): 257-260
73 Verma SK, Singh J, Khamesra R et al. *Indian J Med Res* 1993; **98**: 240-242
74 Bordia A, Verma SK, Srivastava KC. *Prostaglandins Leukot Essent Fatty Acids* 1997; **56**(5): 379-384
75 Lumb AB. *Thromb Haemost* 1994; **71**(1): 110-111
76 Srivastava KC. *Prostaglandins Leukot Essent Fatty Acids* 1989; **35**(3): 183-185
77 Lesho EP, Saullo L, Udvari-Nagy S. *Cleve Clin J Med* 2004; **71**(8): 651-656
78 Jiang X, Williams KM, Liauw WS et al. *Br J Clin Pharmacol* 2005; **59**(4): 425-432
79 Shalansky S, Lynd L, Richardson K et al. *Pharmacotherapy* 2007; **27**(9): 1237-1247
80 Young HY, Liao JC, Chang YS et al. *Am J Chin Med* 2006; **34**(4): 545-551
81 Granger AS. *Age Ageing* 2001; **30**(6): 523-525
82 Gregory PJ. *Ann Intern Med* 2001; **134**(4): 344
83 Kupiec T, Raj V. *J Anal Toxicol* 2005; **29**(7): 755-758
84 Bruhn JG. *Phytomedicine* 2003; **10**(4): 358
85 Chan AL, Leung HW, Wu JW et al. *J Altern Complement Med* 2011; **17**(6): 513-517
86 Bent S, Goldberg H, Padula A et al. *J Gen Intern Med* 2005; **20**(7): 657-661
87 Griffiths J, Jordon S, Pilon K. *Canadian Adverse Reaction Newsletter* 2004; **14**(1): 2-3
88 Pedroso JL, Henriques Aquino CC, Escórcio Bezerra ML et al. *Neurologist* 2011; **17**(2): 89-90
89 Kellermann AJ, Kloft C. *Pharmacotherapy* 2011; **31**(5): 490-502
90 Vellas B, Coley N, Ousset PJ et al. *Lancet Neurol* 2012; **11**(10): 851-859
91 Schubert SR. *Consultant* 2013; **53**(6): 420-426
92 DeLoughery TG, Kaye JA, Morris CD et al. *Blood* 2002; **100**(11): Abstract #3809
93 Gardner CD, Zehnder JL, Rigby AJ et al. *Blood Coagul Fibrinolysis* 2007; **18**(8): 787-793
94 Wolf HR. *Drugs R D* 2006, **7**(3): 163-172
95 Aruna D, Naidu MU. *Br J Clin Pharmacol* 2007; **63**(3): 333-338
96 Kim HS, Kim GY, Yeo CW et al. *Br J Clin Pharmacol* 2014; **77**(5): 821-830
97 Damborough S. *Menopause Int* 2012; **18**(3): 116-117
98 Kim BH, Kim KP, Lim KS et al. *Clin Ther* 2010; **32**(2): 380-390
99 Lu WJ, Huang JD, Lai ML. *J Clin Pharmacol* 2006; **46**(6): 628-634
100 Hong JM, Shin DH, Lim YA et al. *Thromb Res* 2013; **131**(4): e147-e153
101 Engelsen J, Nielsen JD, Winther K. *Thromb Haemost* 2002; **87**(6): 1075-1076
102 Lai CF, Chang CC, Fu CH et al. *Pharmacotherapy* 2002; **22**(10): 1326
103 Zhang XY, Zhou DF, Su JM et al. *J Clin Psychopharmacol* 2001; **21**(1): 85-88
104 Zhang XY, Zhou DF, Zhang PY et al. *J Clin Psychiatry* 2001; **62**(11): 878-883
105 Atmaca M, Tezcan E, Kuloglu M et al. *Psychiatry Clin Neurosci* 2005; **59**(6): 652-656
106 Doruk A, Uzun O, Ozsahin A. *Int Clin Psychopharmacol* 2008; **23**(4): 223-237
107 Blonk M, Colbers A, Poirters A et al. *Antimicrob Agents Chemother* 2012; **56**(10): 5070-5075
108 Wiegman DJ, Brinkman K, Franssen EJ. *AIDS* 2009; **23**(9): 1184-1185
109 Markowitz JS, Donovan JL, Lindsay DeVane C et al. *J Clin Psychopharmacol* 2003; **23**(6): 576-581
110 Zuo XC, Zhang BK, Jia SJ et al. *Eur J Clin Pharmacol* 2010; **66**(5): 503-509
111 Uchida S, Yamada H, Li XD et al. *J Clin Pharmacol* 2006; **46**(11): 1290-1298
112 Robertson SM, Davey RT, Voell J et al. *Curr Med Res Opin* 2008; **24**(2): 591-599
113 Zadoyan G, Rokitta D, Klement S et al. *Eur J Clin Pharmacol* 2012; **68**(5): 553-560
114 Kudolo GB, Wang W, Javors M et al. *Clin Nutr* 2006; **25**(4): 606-616
115 Personal communication from trial author Kudolo GB, 29 February 2008.
116 Wang W, Javors M, Blodgett J et al. *Diabetes* 2007; **56**(Suppl 1): A560
117 Smith M, Lin KM, Zheng MD. *Clin Pharmacol Ther* 2001; **69**(2): P86, Abstract #PIII-89
118 Yoshioka M, Ohnishi N, Koishi T et al. *Biol Pharm Bull* 2004; **27**(12): 2006-2009
119 Yin OQ, Tomlinson B, Waye MM et al. *Pharmacogenetics* 2004; **14**(12): 841-850
120 Guo CX, Pei Q, Yin JY et al. *Xenobiotica* 2012; **42**(8): 784-790
121 Dai LL, Fan L, Wu HZ et al. *Xenobiotica* 2013; **43**(10): 862-867
122 Fan L, Mao XQ, Tao GY et al. *Xenobiotica* 2009; **39**(3): 249-254
123 Gurley BJ, Swain A, Hubbard MA et al. *Clin Pharmacol Ther* 2008; **83**(1): 61-69
124 Golden EB, Lam PY, Kardosh A et al. *Blood* 2009; **113**(23): 5927-5937
125 Bannerman B, Xu L, Jones M et al. *Cancer Chemother Pharmacol* 2011; **68**(5): 1145-1154
126 Alemdaroglu NC, Dietz U, Wolffram S et al. *Biopharm Drug Dispos* 2008; **29**(6): 335-348
127 Vischini G, Niscola P, Stefoni A et al. *Am J Kidney Dis* 2011; **58**(2): 329
128 Hegazy SK. *Br J Pharm Res* 2014; **4**(3): 289-300
129 Werba JP, Giroli M, Cavalca V et al. *Ann Intern Med* 2008; **149**(4): 286-287
130 Ge J, Tan BX, Chen Y et al. *J Mol Med* 2011; **89**(6): 595-602
131 Taylor JR, Wilt VM. *Ann Pharmacother* 1999; **33**(4): 426-428
132 Wolkerstorfer H. *MMW* 1966; **108**(8): 438-441
133 Jaursch U, Landers E, Schmidt R et al. *Med Welt* 1969; **27**: 1547-1552
134 Tankanow R, Tamer HR, Streetman DS et al. *J Clin Pharmacol* 2003; **43**(6): 637-642
135 Iwamoto M, Ishizaki T, Sato T. *Planta Med* 1981; **42**(1): 1-16
136 Schmidt U, Kuhn U, Ploch M et al. *Phytomedicine* 1994; **1**(1): 17-24
137 Zick SM, Vautaw BM, Gillespie B et al. *Eur J Heart Fail* 2009; **11**(10): 990-999
138 Dalli E, Colomer E, Tormos MC et al. *Phytomedicine* 2011; **18**(8-9): 769-775
139 Walker AF, Marakis G, Simpson E. *Br J Gen Pract* 2006; **56**(527): 437-443
140 Shanmugasundaram ER, Rajeswari G, Baskaran K et al. *J Ethnopharmacol* 1990; **30**(3): 281-294
141 Baskaran K, Kizar Ahamath B, Radha Shanmugasundaram K et al. *J Ethnopharmacol* 1990; **30**(3): 295-300
142 Sharma RD, Raghuram TC, Rao NS. *Eur J Clin Nutr* 1990; **44**(4): 301-306
143 Sharma RD, Raghuram TC. *Nutr Res* 1990; **10**(7): 731-739
144 Sharma RD, Sarkar A, Hazra DK et al. *Nutr Res* 1996; **16**(8): 1331-1339
145 Madar Z, Abel R, Samish S et al. *Eur J Clin Nutr* 1988; **42**(1): 51-54
146 Raghuram TC, Sharma RD, Sivakumar B et al. *Phytother Res* 1994; **8**: 83-86
147 Kassaian N, Azadbakht L, Forghani B et al. *Int J Vitam Nutr Res* 2009; **79**(1): 34-39
148 Hassanzadeh Bashtian M, Emami SA, Mousavifar N et al. *Iran J Pharm Res* 2013; **12**(2): 475-481
149 Ziai SA, Larijani B, Akhoondzadeh S et al. *J Ethnopharmacol* 2005; **102**(2): 202-207
150 Sartore G, Reitano R, Barison A et al. *Eur J Clin Nutr* 2009; **63**(10): 1269-1271
151 Anderson JW, Allgood LD, Turner J et al. *Am J Clin Nutr* 1999; **70**(4): 466-473
152 Rodriguez-Moran M, Guerrero-Romero F, Lazcano-Burciaga G. *J Diabetes Complications* 1998; **12**(5): 273-278
153 Florholmen J, Arvidsson-Lenner R, Jorde R et al. *Acta Med Scand* 1982; **212**(4): 237-239
154 Scott AR, Attenborough Y, Peacock I et al. *BMJ* 1988; **297**(6650): 707-710
155 Sobenin IA, Nedosugova LV, Filatova LV et al. *Acta Diabetol* 2008; **45**(1): 1-6
156 Almeida JC, Grimsley EW. *Ann Intern Med* 1996; **125**(11): 940-941
157 Cartledge A, Rutherford J. Rapid response (electronic letter), BMJ 12 Feb 2001. Available from bmj.com/cgi/eletters/322/7279/139#12643, downloaded 21/2/02.
158 Herberg KW, Winter U. 2nd International Congress on Phytomedicine, Munich, September 11-14, 1996, Abstract P-77.
159 Herberg KW. *Blutalkohol* 1993; **30**(2): 96-105
160 Schelosky L, Raffauf C, Jendroska K et al. *J Neurol Neurosurg Psychiatry* 1995; **58**(5): 639-640
161 Meseguer E, Taboada R, Sanchez V et al. *Mov Disord* 2002; **17**(1): 195-196
162 Noldner M, Chatterjee SS. *Phytomedicine* 1999; **6**(4): 285-286
163 Boerner RJ, Klement S. *Wien Med Wochenschr* 2004; **154**(21-22): 508-510
164 Yamamoto M, Tamura Y, Kuashima K et al. Cited in: Han KH, Choe SC, Kim HS et al. *Am J Chin Med* 1998; **26**(2): 199-209
165 Caron MF, Hotsko AL, Robertson S et al. *Ann Pharmacother* 2002; **36**(5): 758-763
166 Cherdrungsi P, Rungroeng K. Cited in: Buettner C, Yeh GY, Phillips RS et al. *Ann Pharmacother* 2006; **40**(1): 83-95
167 Park BJ, Lee YJ, Lee HR et al. *Korean J Fam Med* 2012; **33**(4): 190-196
168 Vuksan V, Sung MK, Sievenpiper JL et al. *Nutr Metab Cardiovasc Dis* 2008; **18**(1): 46-56
169 Kim NR, Kim JH, Kim CY. *J Ginseng Res* 2010; **34**(3): 237-245
170 Han KH, Choe SC, Kim HS et al. *Am J Chin Med* 1998; **26**(2): 199-209
171 Chung IM, Lim JW, Pyun WB et al. *J Ginseng Res* 2010; **34**(3): 212-218
172 Rhee MY, Kim YS, Bae JH et al. *J Altern Complement Med* 2011; **17**(1): 45-49
173 Lee JH, Park HJ. *J Ginseng Res* 1998; **22**(3): 173-180
174 Lee JH, Kim SH. *Korean J Nutr* 1995; **28**(9): 862-871
175 Shin KS, Lee JJ, Kim YI et al. *J Ginseng Res* 2007; **31**(2): 109-116
176 Janetzky K, Morreale AP. *Am J Health Syst Pharm* 1997; **54**(6): 692-693
177 Jiang X, Williams KM, Liauw WS et al. *Br J Clin Pharmacol* 2004; **57**(5): 592-599
178 Lee SH, Ahn YM, Ahn SY et al. *J Altern Complement Med* 2008; **14**(6): 715-721
179 Lee YH, Lee BK, Choi YJ et al. *Int J Cardiol* 2010; **145**(2): 275-276
180 Shao J, Jia L. *Trends Pharmacol Sci* 2013; **34**(2): 85-86
181 Bilgi N, Bell K, Ananthakrishnan AN et al. *Ann Pharmacother* 2010; **44**(5): 926-928
182 Mateo-Carrasco H, Gálvez-Contreras MC, Fernández-Ginés FD et al. *Drug Metabol Drug Interact* 2012; **27**(3): 171-175
183 Sotaniemi EA, Haapakoski E, Rautio A. *Diabetes Care* 1995; **18**(10): 1373-1375
184 Reeds DN, Patterson BW, Okunade A et al. *Diabetes Care* 2011; **34**(5): 1071-1076
185 Okuda H, Yoshida R. *Proceedings of the Third International Ginseng Symposium*. Seoul, Korea. Korea Ginseng Research Institute, September 8-10, 1980, pp 53-57.
186 Ma SW, Benzie IF, Chu TT et al. *Diabetes Obes Metab* 2008; **10**(11): 1125-1127
187 Tetsutani T, Yamamura M, Yamaguchi T et al. *Ginseng Rev* 2000; **28**: 44-47
188 Jones BD, Runikis AM. *J Clin Psychopharmacol* 1987; **7**(3): 201-202
189 Shader RI, Greenblatt DJ. *J Clin Psychopharmacol* 1988; **8**(4): 235
190 Shader RI, Greenblatt DJ. *J Clin Psychopharmacol* 1985; **5**(2): 65
191 Malati CY, Robertson SM, Hunt JD et al. *J Clin Pharmacol* 2012; **52**(6): 932-939
192 Gillis CN. *Biochem Pharmacol* 1997; **54**(1): 1-8
193 Kim HJ, Woo DS, Lee G et al. *Br J Urol* 1998; **82**(5): 744-748
194 *ESCOP Monographs: The Scientific Foundation for Herbal Medicinal Products*, 2nd Edn. ESCOP, European Scientific Cooperative on Phytotherapy, Exeter, 2003.
195 Stormer FC, Reistad R, Alexander J. *Food Chem Toxicol* 1993; **31**(4): 303-312
196 Cheng CJ, Chen YH, Chau T et al. *Support Care Cancer* 2004; **12**(11): 810-812
197 Sigurjonsdottir HA, Franzson L, Manhem K et al. *J Hum Hypertens* 2001; **15**(8): 549-552
198 Sigurjonsdottir HA, Manhem K, Axelson M et al. *J Hum Hypertens* 2003; **17**(2): 125-131
199 Sigurjonsdottir HA, Ragnarsson J, Franzson L et al. *J Hum Hypertens* 1995; **9**(5): 345-348
200 Sobieszczyk P, Borlaug BA, Gornik HL et al. *Clin Sci* 2010; **119**(10): 437-442
201 Ferrari P, Sansonnens A, Dick B et al. *Hypertension* 2001; **38**(6): 1330-1336
202 van Gelderen CE, Bijlsma JA, van Dokkum W et al. *Hum Exp Toxicol* 2000; **19**(8): 434-439
203 Brouwers AJ, van der Meulen J. *Ned Tijdschr Geneeskd* 2001; **145**(15): 744-747
204 Yoshino T, Yanagawa T, Watanabe K. *J Altern Complement Med* 2014; **20**(6): 516-520
205 Iida R, Otsuka Y, Matsumoto K et al. *Clin Exp Nephrol* 2006; **10**(2): 131-135
206 Maeda Y, Inaba N, Aoyagi M et al. *Intern Med* 2008; **47**(14): 1345-1348
207 Stewart PM, Burra P, Shackleton CH et al. *J Clin Endocrinol Metab* 1993; **76**(3): 748-751

208 Kageyama Y, Suzuki H, Saruta T. *J Endocrinol* 1992; **135**(1): 147-152
209 MacKenzie MA, Hoefnagels WH, Jansen RW et al. *J Clin Endocrinol Metab* 1990; **70**(6): 1637-1643
210 Stewart PM, Wallace AM, Valentino R et al. *Lancet* 1987; **330**(8563): 821-824
211 Epstein MT, Espiner EA, Donald RA et al. *J Clin Endocrinol Metab* 1978; **47**(2): 397-400
212 Mattarello MJ, Benedini S, Fiore C et al. *Steroids* 2006; **71**(5): 403-408
213 Biglieri EG. *Steroids* 1995; **60**(1): 52-58
214 Forslund T, Fyhrquist F, Frøseth B et al. *J Intern Med* 1989; **225**(2): 95-99
215 Stewart PM, Wallace AM, Atherden SM et al. *Clin Sci* 1990; **78**(1): 49-54
216 van Uum SH, Walker BR, Hermus AR et al. *Clin Sci* 2002; **102**(2): 203-211
217 Armanini D, Nacamulli D, Francini-Pesenti F et al. *Steroids* 2005; **70**(8): 538-542
218 Kasuya Y, Yokokawa A, Takashima S et al. *Steroids* 2005; **70**(2): 117-125
219 Kasuya Y, Yokokawa A, Hamura K et al. *Steroids* 2005; **70**(12): 811-816
220 Teelucksingh S, Mackie AD, Burt D et al. *Lancet* 1990; **335**(8697): 1060-1063
221 Chen MF, Shimada F, Kato H et al. *Endocrinol Jpn* 1991; **38**(2): 167-174
222 Conti M, Frey FJ, Escher G et al. *Nephrol Dial Transplant* 1994; **9**(11): 1622-1628
223 Shintani S, Murase H, Tsukagoshi H et al. *Eur Neurol* 1992; **32**(1): 44-51
224 Bernardi M, d-Intimo PE, Trevisani F et al. *Life Sci* 1994; **55**(11): 863-872
225 Harada T, Ohtaki E, Misu K et al. *Cardiology* 2002; **98**(4): 218
226 Armanini D, Castello R, Scaroni C et al. *Eur J Obstet Gynecol Reprod Biol* 2007; **131**(1): 61-67
227 Kurisu S, Inoue I, Kawagoe T et al. *J Am Geriatr Soc* 2008; **56**(8): 1579-1581
228 Heidemann HT, Kreuzfelder E. *Klin Wochenschr* 1983; **61**(6): 303-305
229 Chataway SJ, Mumford CJ, Ironside JW. *Postgrad Med J* 1997; **73**(863): 593-594
230 Folkersen L, Knudsen NA, Teglbjaerg PS. *Ugeskr Laeger* 1996; **158**(51): 7420-7421
231 Famularo G, Corsi FM, Giacanelli M. *Acad Emerg Med* 1999; **6**(9): 960-964
232 Nielsen I, Pedersen RS. *Lancet* 1984; **323**(8389): 1305
233 Conn JW, Rovner DR, Cohen EL. *JAMA* 1968; **205**(7): 492-496
234 Sontia B, Mooney J, Gaudet L et al. *J Clin Hypertens* 2008; **10**(2): 153-157
235 Hukkanen J, Ukkola O, Savolainen MJ. *Blood Press* 2009; **18**(4): 192-195
236 Jiao Z, Shi XJ, Li ZD et al. *Br J Clin Pharmacol* 2009; **68**(1): 47-60
237 Tu JH, He YJ, Chen Y et al. *Eur J Clin Pharmacol* 2010; **66**(8): 805-810
238 Tu JH, Hu DL, Dai LL et al. *Xenobiotica* 2010; **40**(6): 393-399
239 Liapina LA, Koval'chuk GA. *Izv Akad Nauk Ser Biol* 1993; (4): 625-628
240 Coderre K, Faria C, Dyer E. *Pharmacotherapy* 2010; **30**(1): 50e-52e
241 Kassebaum PJ, Shaw DL, Tomich DJ. *Ann Pharmacother* 2005; **39**(2): 365-367
242 Nowack R, Nowak B. *Nephrol Dial Transplant* 2005; **20**(11): 2554-2556
243 Hurrell RF, Reddy M, Cook JD. *Br J Nutr* 1999; **81**(4): 289-295
244 Fleming DJ, Jacques PF, Dallal GE et al. *Am J Clin Nutr* 1998; **67**(4): 722-733
245 Li J, Wang R, Xiao C. *J Med Food* 2014; **17**(4): 472-478
246 Samman S, Sandstrom B, Toft MB et al. *Am J Clin Nutr* 2001; **73**(3): 607-612
247 Tuntipopipat S, Judprasong K, Zeder C et al. *J Nutr* 2006; **136**(12): 2970-2974
248 Olivares M, Pizarro F, Hertrampf E et al. *Nutrition* 2007; **23**(4): 296-300
249 Kubota K, Sakurai T, Nakazato K et al. *Nippon Ronen Igakkai Zasshi* 1990; **27**(5): 555-558
250 Mitamura T, Kitazono M, Yoshimura O et al. *Nippon Sanka Fujinka Gakkaoi Zasshi* 1989; **41**(6): 688-694
251 Prystai EA, Kies CV, Driskell JA. *Nutr Res* 1999; **19**(2): 167-177
252 Schlesier K, Kuhn B, Kiehntopf M et al. *Food Res Int* 2012; **46**(2): 522-527
253 Mennen L, Hirvonen T, Arnault N et al. *Eur J Clin Nutr* 2007; **61**(10): 1174-1179
254 Imai K, Nakachi K. *BMJ* 1995; **310**(6981): 693-696
255 Ullmann U, Haller J, Bakker GC et al. *Phytomedicine* 2005; **12**(6-7): 410-415
256 Hutchinson C, Bomford A, Geissler CA. *Eur J Clin Nutr* 2010; **64**(10): 1239-1241
257 Etman MA. *Drug Dev Indust Pharm* 1995; **21**(16): 1901-1906
258 Ettinger AB, Shinnar S, Sinnett MJ et al. *J Epilepsy* 1992; **5**(3): 191-193
259 Brown DD, Juhl RP, Warner SL. *Am J Cardiol* 1977; **39**(2): 297
260 Nordstrom M, Melander A, Robertsson E et al. *Drug Nutr Interact* 1987; **5**(2): 67-69
261 Walan A, Bergdahl B, Skoog M-L. *Scand J Gastroenterol* 1977; **12**(Supp 45): 111
262 Reissell P, Manninen V. *Acta Med Scand Suppl* 1982; **668**: 88-90
263 Rossander L. *Scand J Gastroenterol Suppl* 1987; **129**: 68-72
264 Sierra M, García JJ, Fernández N et al. *Eur J Clin Nutr* 2002; **56**(9): 830-842
265 Dennison BA, Levine DM. *J Pediatr* 1993; **123**(1): 24-29
266 Burton R, Manninen V. *Acta Med Scand Suppl* 1982; **668**: 91-94
267 Kawatra A, Bhat CM, Arora A. *Eur J Clin Nutr* 1993; **47**(4): 297-300
268 Enzi G, Inelmen EM, Crepaldi G. *Pharmatherapeutica* 1980; **2**(7): 421-428
269 Perlman BB. *Lancet* 1990; **335**(8686): 416
270 Toutoungi M, Schulz P, Widmer J et al. *Therapie* 1990; **45**(4): 358-360
271 Robinson DS, Benjamin DM, McCormack JJ. *Clin Pharmacol Ther* 1971; **12**(3): 491-495
272 Ahi S, Esmaeilzadeh M, Kayvanpour E et al. *Acta Med Iran* 2011; **49**(10): 688-689
273 Cavaliere H, Floriano I, Medeiros-Neto G. *Int J Obes Relat Metab Disord* 2001; **25**(7): 1095-1099
274 Liel Y, Harman-Boehm I, Shany S. *J Clin Endocrinol Metab* 1996; **81**(2): 857-859
275 Chiu AC, Sherman SI. *Thyroid* 1998; **8**(8): 667-671
276 Cheema P, El-Mefty O, Jazieh AR. *J Intern Med* 2001; **250**(2): 167-169
277 Geavlete P, Multescu R, Geavlete B. *Ther Adv Urol* 2011; **3**(4): 193-198
278 Yue QY, Jansson K. *J Am Geriatr Soc* 2001; **310**(4): 838
279 Villanueva S, González J. *Bol Asoc Med PR* 2009; **101**(3): 48-50
280 Li R, Guo W, Fu Z et al. *Can J Physiol Pharmacol* 2012; **90**(7): 941-945
281 Xin HW, Wu XC, Li Q et al. *Br J Clin Pharmacol* 2007; **64**(4): 469-475
282 Jiang W, Wang X, Xu X et al. *Int J Clin Pharmacol Ther* 2010; **48**(3): 224-229
283 Jiang W, Wang X, Kong L. *Immunopharmacol Immunotoxicol* 2010; **32**(1): 177-178
284 Xin HW, Wu XC, Li Q et al. *Br J Clin Pharmacol* 2009; **67**(5): 541-546
285 Ko KM, Ip SP, Poon MK et al. *Planta Med* 1995; **61**(2): 134-137
286 Lu H, Liu GT. *Zhongguo Yao Li Xue Bao* 1990; **11**(4): 331-335
287 McRae S. *Can Med Assoc J* 1996; **155**(3): 293-295
288 Cicero AF, Derosa G, Brillante R et al. *Arch Gerontol Geriatr Suppl* 2004; (9): 69-73
289 Johne A, Schmider J, Brockmoller J et al. *J Clin Psychopharmacol* 2002; **22**(1): 46-54
290 Australian Therapeutic Goods Administration. Media Release, March 2000.
291 Breckenridge A. Message from Committee on Safety of Medicines, 29 February 2000. Medicines Control Agency, London.
292 Henney JE. *JAMA* 2000; **283**(13): 1679
293 Burstein AH, Horton RL, Dunn T et al. *Clin Pharmacol Ther* 2000; **68**(6): 605-612
294 *Drug Safety Update* Volume 1, Issue 4, November 2007, p 7. Available from www.mhra.gov.uk/Publications/Safetyguidance/DrugSafetyUpdate/index.htm. Accessed 18 April 2008.
295 Wang LS, Zhu B, Abd El-Aty AM et al. *J Clin Pharmacol* 2004; **44**(6): 577-581
296 Wang Z, Hamman MA, Huang SM et al. *Clin Pharmacol Ther* 2002; **71**(6): 414-420
297 Dresser GK, Schwarz UI, Wilkinson GR et al. *Clin Pharmacol Ther* 2003; **73**(1): 41-50
298 Lau WC, Gurbel PA, Carville DG et al. *J Am Coll Cardiol* 2007; **49**(9, Suppl 1): 343A-344A
299 Lau WC, Welch TD, Shields TA et al. *J Am Coll Cardiol* 2010; **55**(10, Suppl 1): A171. E1600
300 Lau WC, Welch TD, Shields T et al. *J Cardiovasc Pharmacol* 2011; **57**(1): 86-93
301 Trana C, Toth G, Wijns W et al. *J Cardiovasc Transl Res* 2013; **6**(3): 411-414
302 Fitzgerald DJ, Maree A. *Hematology Am Soc Hematol Educ Program* 2007; **2007**: 114-120
303 Maurer A, Johne A, Bauer S et al. *Eur J Clin Pharmacol* 1999; **55**(3): A22
304 Yue QY, Bergquist C, Gerden B. *Lancet* 2000; **355**(9203): 576-577
305 Barnes J, Anderson LA, Phillipson JD. *J Pharm Pharmacol* 2001; **53**(5): 583-600
306 Uygur Bayramiçli O, Kalkay MN, Oskay Bozkaya E et al. *Turk J Gastroenterol* 2011; **22**(1): 115
307 Mueller SC, Majcher-Peszynska J, Uehleke B et al. *Eur J Clin Pharmacol* 2006; **62**(1): 29-36
308 Arold G, Donath F, Maurer A et al. *Planta Med* 2005; **71**(4): 331-337
309 Markowitz JS, Donovan JL, DeVane CL et al. *JAMA* 2003; **290**(11): 1500-1504
310 Wang Z, Gorski JC, Hamman MA et al. *Clin Pharmacol Ther* 2001; **70**(4): 317-326
311 Mueller SC, Majcher-Peszynska J, Mundkowski RG et al. *Eur J Clin Pharmacol* 2009; **65**(1): 81-87
312 Kawaguchi A, Ohmori M, Tsuruoka S et al. *Br J Clin Pharmacol* 2004; **58**(4): 403-410
313 Wang XD, Li JL, Lu Y et al. *J Chromatogr B Analyt Technol Biomed Life Sci* 2007; **852**(1-2): 534-544
314 Tannergren C, Engman H, Knutson L et al. *Clin Pharmacol Ther* 2004; **75**(4): 298-309
315 Mathijssen RH, Verweij J, de Bruijn P et al. *J Natl Cancer Inst* 2002; **94**(16): 1247-1249
316 Mansky PJ, Straus SE. *J Natl Cancer Inst* 2002; **94**(16): 1187-1188
317 Smith PF, Bullock JM, Booker BM et al. *Blood* 2004; **104**(4): 1229-1230
318 Frye RF, Fitzgerald SM, Lagattuta TF et al. *Clin Pharmacol Ther* 2004; **76**(4): 323-329
319 Van Strater AC, Bogers JP. *Int Clin Psychopharmacol* 2012; **27**(2): 121-124
320 Johne A, Brockmoller J, Bauer S et al. *Clin Pharmacol Ther* 1999; **66**(4): 338-345
321 Durr D, Stieger B, Kullak-Ublick GA et al. *Clin Pharmacol Ther* 2000; **68**(6): 598-604
322 Mueller SC, Uehleke B, Woehling H et al. *Clin Pharmacol Ther* 2004; **75**(6): 546-557
323 Goey AK, Meijerman I, Rosing H et al. *Clin Pharmacokinet* 2014; **53**(1): 103-110
324 Lundahl A, Hedeland M, Bondesson U et al. *Eur J Pharm Sci* 2009; **36**(4-5): 433-443
325 Anon. *Reactions Weekly* 2011; **1336**: 22
326 de Maat MMR, Hoetelmans RMW, Mathot RAA et al. *AIDS* 2001; **15**(3): 420-421
327 Piscitelli SC, Burstein AH, Chaitt D et al. *Lancet* 2000; **355**(9203): 547-548
328 Xu H, Williams KM, Liauw WS et al. *Br J Pharmacol* 2008; **153**(7): 1579-1586
329 Fan L, Zhou G, Guo D et al. *Clin Pharmacokinet* 2011; **50**(9): 605-611
330 Bon S, Hartmann K, Kuhn M. *Schweiz Apoth* 1999; **16**: 535-536
331 Ahmed SM, Banner NR, Dubrey SW. *J Heart Lung Transplant* 2001; **20**(7): 795
332 Ruschitzka F, Meier PJ, Turina M et al. *Lancet* 2000; **355**(9203): 548-549
333 Mai I, Kruger H, Budde K et al. *Int J Clin Pharmacol Ther* 2000; **38**(10): 500-502
334 Karliova M, Treichel U, Malago M et al. *J Hepatol* 2000; **33**(5): 853-855
335 Rey JM, Walter G. *Med J Aust* 1998; **169**(11-12): 583-586
336 Barone GW, Gurley BJ, Ketel BL et al. *Transplantation* 2001; **71**(2): 239-241
337 Barone GW, Gurley BJ, Ketel BL et al. *Ann Pharmacother* 2000; **34**(9): 1013-1016
338 Moschella C, Jaber BL. *Am J Kidney Dis* 2001; **38**(5): 1105-1107
339 Beer AM, Ostermann T. *Med Klin* 2001; **96**(8): 480-483
340 Breidenbach T, Kliem V, Burg M et al. *Transplantation* 2000; **69**(10): 2229-2230
341 Mai I, Bauer S, Perloff ES et al. *Clin Pharmacol Ther* 2004; **76**(4): 330-340
342 Bolley R, Zulke C, Kammerl M et al. *Transplantation* 2002; **73**(6): 1009
343 Mai I, Stormer E, Bauer S et al. *Nephrol Dial Transplant* 2003; **18**(4): 819-822
344 Hebert MF, Park JM, Chen YL et al. *J Clin Pharmacol* 2004; **44**(1): 89-94
345 Portoles A, Terleira A, Calvo A et al. *J Clin Pharmacol* 2006; **46**(10): 1188-1194
346 Peltoniemi MA, Saari TI, Hagelberg NM et al. *Fundam Clin Pharmacol* 2012; **26**(6): 743-750
347 Eich-Hochli D, Oppliger R, Golay KP et al. *Pharmacopsychiatry* 2003; **36**(1): 35-37
348 Niederhofer H. *Med Hypotheses* 2007; **68**(5): 1189
349 Galeotti N, Farzad M, Bianchi E et al. *J Pharmacol Sci* 2014; **124**(4): 409-417
350 Wang LS, Zhou G, Zhu B et al. *Clin Pharmacol Ther* 2004; **75**(3): 191-197
351 Information from the MPA (Medical Products Agency, Sweden) and the MCA (Medicines Control Agency, UK), 2000-2002.
352 Schwarz UI, Buschel B, Kirch W. *Br J Clin Pharmacol* 2003; **55**(1): 112-113
353 *Drug Safety Update March 2014* Volume 7, Issue 8: A2. Available from http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON392869. Accessed June 2014.
354 Murphy PA, Kern SE, Stanczyk FZ et al. *Contraception* 2005; **71**(6): 402-408
355 Hall SD, Wang Z, Huang SM et al. *Clin Pharmacol Ther* 2003; **74**(6): 525-535
356 Pfrunder A, Schiesser M, Gerber S et al. *Br J Clin Pharmacol* 2003; **56**(6): 683-690
357 Will-Shahab L, Bauer S, Kunter U et al. *Eur J Clin Pharmacol* 2009; **65**(3): 287-294
358 Murphy P, Bellows B, Kern S. *Contraception* 2010; **82**(2): 191
359 Fogle RH, Murphy PA, Westhoff CL et al. *Contraception* 2006; **74**(3): 245-248
360 Nieminen TH, Hagelberg NM, Saari TI et al. *Eur J Pain* 2010; **14**(8): 854-859
361 Gordon JB. *Am Fam Phys* 1998; **57**(5): 950, 953
362 Dermott K. *Clinical Psychiatry News* 1998; **26**(3): 28
363 Barbenel DM, Yusuf B, O'Shea D et al. *J Psychopharmacol* 2000; **14**(1): 84-86
364 Lantz MS, Buchalter E, Giambanco V. *J Geriatr Psychiatry Neurol* 1999; **12**(1): 7-10
365 Prost N, Tichadou L, Rodor F et al. *Presse Med* 2000; **29**(23): 1285-1286
366 Waksman JC, Heard K, Jolliff H et al. *Clin Toxicol* 2000; **38**(5): 521
367 Andren L, Andreasson A, Eggertsen R. *Eur J Clin Pharmacol* 2007; **63**(10): 913-916
368 Sugimoto K, Ohmori M, Tsuruoka S et al. *Clin Pharmacol Ther* 2001; **70**(6): 518-524
369 Gordon RY, Becker DJ, Rader DJ. *Am J Med* 2009; **122**(2): e1-e2
370 Eggertsen R, Andreasson A, Andren L. *Scand J Prim Health Care* 2007; **25**(3): 154-159
371 Schwarz UI, Hanso H, Oertel R et al. *Clin Pharmacol Ther* 2007; **81**(5): 669-678
372 Nebel A, Schneider BJ, Baker RK et al. *Ann Pharmacother* 1999; **33**(4): 502
373 Morimoto T, Kotegawa T, Tsutsumi K et al. *J Clin Pharmacol* 2004; **44**(1): 95-101
374 Rengelshausen J, Banfield M, Riedel KD et al. *Clin Pharmacol Ther* 2005; **78**(1): 25-33
375 Hojo Y, Echizenya M, Ohkubo T et al. *J Clin Pharm Ther* 2011; **36**(6): 711-715
376 Velussi M, Cernigoi AM, de Monte A et al. *J Hepatol* 1997; **26**(4): 871-879
377 Jose MA, Abraham A, Narmadha MP. *J Pharmacol Pharmacother* 2011; **2**(4): 287-289
378 Hussain SA. *J Med Food* 2007; **10**(3): 543-547
379 Huseini HF, Larijani B, Heshmat R et al. *Phytother Res* 2006; **20**(12): 1036-1039
380 Taher MA, Atia YA, Amin MK. *Iraqi J Pharm Sci* 2010; **19**(2): 11-18
381 Hashemi SJ, Hajiani E, Sardabi EH. *Hep Mon* 2009; **9**(4): 265-270
382 Deng YQ, Fan XF, Li JP. *Chin J Integr Med* 2005; **11**(2): 117-122
383 Han Y, Guo D, Chen Y et al. *Eur J Clin Pharmacol* 2009; **65**(6): 585-591
384 Rajnarayana K, Reddy MS, Vidyasagar J et al. *Arzneim Forsch* 2004; **54**(2): 109-113
385 Fuhr U, Beckmann-Knopp S, Jetter A et al. *Planta Med* 2007; **73**(14): 1429-1435
386 Repalle SS, Yamsani SK, Gannu R et al. *Acta Pharm Sci* 2009; **51**(1): 15-20
387 Han Y, Guo D, Chen Y et al. *Xenobiotica* 2009; **39**(9): 694-699
388 Rossander L, Hallberg L, Bjorn-Rasmussen E. *Am J Clin Nutr* 1979; **32**(12): 2484-2489
389 Disler PB, Lynch SR, Charlton RW et al. *Gut* 1975; **16**(3): 193-200
390 Brune M, Rossander L, Hallberg L. *Eur J Clin Nutr* 1989; **43**(8): 547-557
391 Derman D, Sayers M, Lynch SR et al. *Br J Nutr* 1977; **38**(2): 261-269
392 Hallberg L, Rossander L. *Hum Nutr Appl Nutr* 1982; **36**(2): 116-123
393 Chung KT, Wong TY, Wei CI et al. *Crit Rev Food Sci Nutr* 1998; **38**(6): 421-464
394 Morck TA, Lynch SR, Cook JD. *Am J Clin Nutr* 1983; **37**(3): 416-420
395 Layrisse M, García-Casal MN, Solano L et al. *J Nutr* 2000; **130**(9): 2195-2159. Erratum in: *J Nutr* 2000; **130**(12): 3106
396 Thankachan P, Walczyk T, Muthayya S et al. *Am J Clin Nutr* 2008; **87**(4): 881-886
397 Nelson M, Poulter J. *J Hum Nutr Diet* 2004; **17**(1): 43-54
398 Gabrielli GB, De Sandre G. *Haematologica* 1995; **80**(6): 518-520
399 Mahlknecht U, Weidmann E, Seipelt G. *Haematologica* 2001; **86**(5): 559
400 Kaltwasser JP, Werner E, Schalk K et al. *Gut* 1998; **43**(5): 699-704
401 Ganji V, Kies CV. *Plant Foods Hum Nutr* 1994; **46**(3): 267-276
402 Juan H, Terhaag B, Cong Z et al. *Eur J Clin Pharmacol* 2007; **63**(7): 663-668
403 USP Drug Information, US Pharmacopeia Patient Leaflet, Valerian (Oral). Rockville: The United States Pharmacopeial Convention, 1998.
404 Herberg KW. *Therapiewoche* 1994; **44**(12): 704-713
405 Carrasco MC, Vallejo JR, Pardo-de-Santayana M et al. *Phytother Res* 2009; **23**(12): 1795-1796
406 Donovan JL, DeVane CL, Chavin KD et al. *Drug Metab Dispos* 2004; **32**(12): 1333-1336
407 Krivoy N, Pavlotzky E, Chrubasik S et al. *Planta Med* 2001; **67**(3): 209-212
408 Personal communication from trial author Yu KS, 2 February 2010.
409 Makino T, Hishida A, Goda Y et al. *Nat Med* 2008; **62**(3): 294-299
410 Product information for Cranberry Classic juice drink. Available from www.oceanspray.com.au. Accessed November 2009.
411 Warshafsky S, Kamer RS, Sivak SL. *Ann Intern Med* 1993; **119**(7 Pt 1): 599-605
412 Lawson LD, Wang ZJ, Papadimitriou D. *Planta Med* 2001; **67**(1): 13-18
413 De Smet PA, Floor-Schreudering A, Bouvy ML et al. *Curr Drug Metab* 2008; **9**(10): 1055-1062
414 Leistner E, Drewke C. *J Nat Prod* 2010; **73**(1): 86-92
415 Kajiyama Y, Fujii K, Takeuchi H et al. *Pediatrics* 2002; **109**(2): 325-327
416 Hasegawa S, Oda Y, Ichiyama T et al. *Pediatr Neurol* 2006; **35**(4): 275-276
417 Arenz A, Klein M, Fiehe K et al. *Planta Med* 1996; **62**(6): 548-551
418 Kuenick C. *Dtsch Apoth Ztg* 2010; **150**(5): 60-61
419 Gaus W, Westendorf J, Diebow R. et al. *Methods Inf Med* 2005; **44**(5): 697-703
420 DeKosky ST, Williamson JD, Fitzpatrick AL et al. *JAMA* 2008; **300**(19): 2253-2262
421 Kim TE, Kim BH, Kim J et al. *Clin Ther* 2009; **31**(10): 2249-2257
422 Shah JJ, Kuhn DJ, Orlowski RZ. *Blood* 2009; **113**(23): 5695-5696
423 Henning SM, Niu Y, Liu Y et al. *J Nutr Biochem* 2005; **16**(10): 610-616
424 Kageyama Y, Suzuki H, Saruta T. *Endocrinol Jpn* 1991; **38**(1): 103-108
425 Haslam E, Lilley TH. *Crit Rev Food Sci Nutr* 1988; **27**(1): 1-40
426 Price ML, Butler LG. *J Agric Food Chem* 1977; **25**(6): 1268-1273
427 Ewerth S, Ahlberg J, Holmstrom B et al. *Acta Chir Scand Suppl* 1980; **500**: 49-50
428 Moreyra AE, Wilson AC, Koraym A. *Arch Intern Med* 2005; **165**(10): 1161-1166
429 Agrawal AR, Tandon M, Sharma PL. *Int J Clin Pract* 2007; **61**(11): 1812-1818
430 Halstead CW, Lee S, Khoo CS et al. *J Pharm Biomed Anal* 2007; **45**(1): 30-37
431 Zhu M, Chen XS, Wang KX. *Chromatographia* 2007; **66**(1-2): 125-128
432 Dasgupta A, Wu S, Actor J et al. *Am J Clin Pathol* 2003; **119**(2): 298-303
433 Ang CYW, Hu L, Heinze TM et al. *J Agric Food Chem* 2004; **52**(20): 6156-6164
434 MediHerb Research Laboratories, 2004.
435 Tomlinson B, Hu M, Lee VW. *Mol Nutr Food Res* 2008; **52**(7): 799-809
436 Lynch SR. *Nutr Rev* 1997; **55**(4): 102-110
437 Gillooly M, Bothwell TH, Charlton RW et al. *Br J Nutr* 1984; **51**(1): 37-46

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