

The use of herbal OTC products in South Africa

PETER SMITH

General Practitioner
Plumstead, Cape Town

Many patients will be taking herbal medicines. Health care workers cannot afford to remain ignorant of the value or the possible dangers of these remedies.

WHAT IS HERBAL MEDICINE?

A herb may be described as any plant that can be put to culinary or medicinal use. The history of present-day biomedicine is inextricably bound up with that of herbal medicine (or phytotherapy). For instance, the term 'drug' may well be derived from 'drogge: to dry' (old Dutch), alluding to the practice of drying medicinal plants prior to use or for storage. The European Union defines herbal medicines as 'those medicinal products, containing as active ingredients exclusively plant material and/or vegetable drug preparations'.

A significant percentage of the medicines used in pharmacy up to the present day are directly or indirectly derived from plant sources.

Nature has provided a vast array of medical plants. A significant percentage of the medicines used in pharmacy up to the present day are directly or indirectly derived from plant sources, e.g. digitalis (from the foxglove), colchicine (from the autumn crocus), aspirin (from the white willow). In addition, herbal medicines remain an important and integral part of both the formal and informal health care sectors in South Africa. It is important to be aware that patients often self-medicate with herbals for many common conditions

and may or may not inform their practitioner of this. The WHO estimates that approximately 80% of the world's population relies mainly on traditional or ethnomedicine, which is largely plant-based.

WHY DID WE MOVE AWAY FROM PLANT-BASED MEDICINE?

Western biomedicine has held sway as the dominant health system over the past 100 years or so. Why is this so?

- Plant-based medicine was perceived as ineffective in many disease states.
- Expediency and the growth of analytical science.
- Phenomenal growth of the pharmaceutical industry (especially in the synthesis of drugs).
- Variable quality of herbals.
- Lack of standardisation.
- Convenience of pre-packed synthetic drugs.
- Rapid growth in population and urbanisation.
- Variable availability.
- Disinformation (for power and profit).
- Cultural differences.
- Basic ignorance of herbal medicine.

AND WHY NOW THE MOVE BACK TO PHYTOTHERAPY?

The view of complementary and alternative systems of medicine (CAMs), including phytotherapy, as being inadequate, 'fringe' and non-scientific, is changing. This appears to be part of a larger macro-trend in society. Changes are obvious in

Table I. Reasons for the move 'back' to phytotherapy

- The relatively high incidence of adverse drug reactions associated with pharmaceutical drugs
- Western biomedicine is perceived, in certain instances, to be unable to treat a number of common, often chronic, conditions effectively
- There is a renewed interest in 'natural' foodstuffs, medicines, etc., including herbals
- Herbals are perceived as promoting optimal health and wellness and not only focusing on a particular disease or symptom
- Increased consumer awareness of herbals usually obtained from advertorial sources (e.g. newspapers, TV, the Internet, etc.)
- The public increasingly tends to self-medicate and herbals are readily available
- Because herbal medicines often work

all areas of human experience: some are positive, but others are very worrying. These are reflected in various spheres, e.g. politics, changing social structures (marriage, family coherence), the environment, personal safety, changing morality, etc. In terms of their health care, consumers increasingly feel that they want 'medicines that are more healthy'. This trend is reflected in a number of ways. For example, in 1997 \$5.1 billion was spent out-of-pocket on herbal medicines in the USA.¹ The estimate for the year 2000, for the same market, was approximately \$9 billion.

This progressive growth in the over the counter (OTC) herbal market worldwide is reflected in South Africa with total annual sales of approximately R2 billion, R140 million of which is on herbals (excluding indigenous herbs). Some pharmaceutical companies have entered the CAMs market by adding herbal medicine lines to their existing orthodox products. Some go as far as acquiring existing herbal companies to add to their stables. This re-emergence of phytotherapy is driven by a number of factors, some based on reality and others on perceptions (see Table I).

SOME OF THE HERBAL MEDICINES AVAILABLE OTC IN SOUTH AFRICA

This is only a selective overview of a few of the herbals that are freely available and does not include herbs indigenous to South Africa. Adverse drug reactions (ADRs), interactions, etc. have been summarised in Table II.

Through its antidepressant and anxiolytic properties, St John's wort has become one of the most widely used herbals worldwide.

St John's wort

Through its antidepressant and anxiolytic properties, St John's wort has become one of the most widely used herbals worldwide. The exact mode of action is unknown. It may act as a selective serotonin reuptake inhibitor (SSRI). A number of trials indicate that St John's wort appears to be effective in the management of mild to moderate depression. The

ADRs encountered with the use of St John's wort are usually related to photosensitivity and are mild. Patients must be advised to avoid excessive sun exposure while on this herb. The chief concern is its tendency to interact with a number of drugs (see Table II).



Fig. 1. Garlic (*Allium sativum*).

Garlic (Fig. 1)

The clinical and biochemical effects of garlic have been extensively studied. It appears to have lipid-lowering, antihypertensive and antiplatelet activity.² Allicin, a propenylsulfenic acid derivative, appears to act as an antioxidant. Trial data point to diallyl disulfide, an allicin metabolite, as being involved in lowering serum levels of both cholesterol and triglycerides. Garlic is approved in some countries as adjunctive therapy for lowering blood lipids and the prevention of age-related degenerative vascular changes.

Kava

Kava is indigenous to the South Pacific where it is used as a relaxant drink, especially on ceremonial occasions. The kava lactones appear to be responsible for its anxiolytic and sedative effects. Unlike pharmaceutical anxiolytics, studies have shown no decrease in effectiveness with prolonged use of

Table II. Information on some commonly used herbals

Herb	Latin name	Pharmacological action	Adverse effects	Interactions	Contra-indications	Cautions
Echinacea (cone flower)	Echinacea spp: angustifolia, purpurea	Immune system stimulant, anti-bacterial, antifungal, anti-inflammatory, vulnerary	Anaphylaxis (rare, esp. in ethanol extracts)	Theoretically diminishes effects of immuno-suppressants	Progressive systemic diseases: HIV, collagen, dis., multiple sclerosis, TB, autoimmune diseases	Take for ~8 wks max. Immune system rebound is theoretically possible
St John' wort	Hypericum perforatum	Antidepressant (probably as SSRI), antiviral	Very few when taken alone e.g. nausea, allergic reactions, photohypersensitivity	Probable hepatic enzyme inducer reducing plasma drug levels e.g. protease inhibitors, cyclosporin, theophyllin. Serotonin synd. danger with SSRIs	Known photohypersensitivity	Children. Interactions with concomitant drugs. Don't combine with prescribed antidepressants
Kava	Piper methysticum	Anxiolytic, muscle relaxant, mood enhancer, analgesic, sedative, antibacterial, platelet inhibitor	Yellow discolouration (skin, nails, hair) Visual disturb; dizziness; extrapyramidal effects; GIT discomfort; hepatitis	Potentiates anxiolytics and alcohol	Liver dysfunction, < 12 yrs age Renal disease, thrombopenia and neutropenia	Avoid concomitant psychotropics and alcohol Limit to 3 mth use
Milk thistle	Carduus marianum	Protects hepatocytes against hepatotoxins Inhibits lipid peroxidation	None except mild allergic reactions (uncommon)	May help prevent liver damage from hepatotoxic drugs		Diabetes (may lower blood sugar)
Garlic	Allium sativum	Lowers cholest. and TGs, hypotensive, lowers blood viscosity, activates fibrinolysis, inhibits plat. aggreg., antimicrobial, anti-inflam., anthelmin.	Odour, occasional GI disturb. or allergic reaction	<ul style="list-style-type: none"> • NSAIDs may incr. antithrombic effect • Warfarin may incr. anticoag. effect (monitor INR) • Oral hypoglycaemics may potentiate 	None known	
Ginkgo	Ginkgo biloba	Terpene lactones and flavone glycosides inhibit platelet aggregation, vasodilate arteries and capillaries An antioxidant	Occasional GI disturbance and headache	<ul style="list-style-type: none"> • Anticoagulants NSAIDs aspirin may incr. risk of bleeding (watch INR) • May decr. anti-epilep. effectivity MAOIs may potentiate 	Pregnancy and lactation. Stop ~ 2 weeks before surgery	
Licorice root	Glycyrrhiza glabra	Expectorant, demulcent, anti-inflammatory and adrenocorticotropic. Glycyrrhizin stim. tracheal and gastric mucus	Pseudo-aldosteronism: K depletion, Na retent., oedema, hypt., wt. gain	Thiazides and loop diuretics, K loss, digitalis sensitivity	Pregnancy, hypertension, hypokalaemia, cirrhosis, cholestatic liver disorders	High-dosage treatment should be limited to not more than 6 weeks
Saw palmetto	Sabal serrulata /Serenoa repens	Inhibits testosterone metabolism via 5-alpha-reductase and cell binding of dihydrotestosterone. An anti-inflammatory	Uncommon and mild: constipation, diarrhoea, headache, nausea, urine retention		Women of childbearing age	Exclude cancer of prostate before starting treatment; may cause false-neg PSA
Ginseng (Chinese or Korean ginseng)	Panax ginseng	Ginsenosides augment adrenal steroidogenesis; adaptogenic effect; anti-fatigue; glycogen-sparing	Hypertension, insomnia, rash, oestrogenic activity (mastalgia, PV bleeding)	Anticoagulants	Hypertension, acute asthma, bipolar disorder (has a stimulant effect)	Diabetes (may lower blood sugar)

kava. The ADR rate is low (1%) and consists mainly of allergic skin reactions and mild GI symptoms. A yellow discolouration of the skin (not jaundice), nails and hair known as kava dermopathy or kavatism has occasionally been observed with prolonged high doses. It is reversed by stopping the kava. Reversible extrapyramidal side-effects have also rarely been reported. The concomitant use of barbiturates and anxiolytics should be avoided. It is recommended that kava use be limited to a maximum of 3 months without medical advice.³



Fig. 2. *Ginkgo* (*Ginkgo biloba*).

Ginkgo (Fig. 2)

The concentrated, standardised extracts of ginkgo leaf have become widely used for the treatment of dementia and cerebrovascular insufficiency. Ginkgo also has an effect on the peripheral circulation. It has a low ADR rate with occasional headaches, palpitations, dizziness and GI disturbances. It may also be useful in the management of mountain sickness, vertigo and tinnitus.

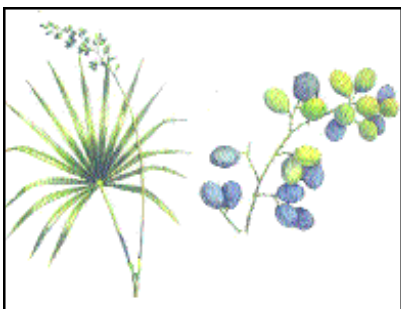


Fig. 3. *Saw palmetto* (*Sabal serrulata/Serenoa repens*).

Saw Palmetto (Fig. 3)

The berries of the American dwarf palm are used extensively for the treatment of benign prostatic hyperplasia (BPH). The high concentration of sterols (which include beta-sitosterol) appear to act as 5-alpha-reductase inhibitors, thus reducing the conversion of testosterone to its active metabolite dihydrotestosterone. The trial literature is largely positive, indicating that, in the short term (up to 6 months) saw palmetto is safe and effective in treating the symptoms of BPH. No herb-drug interactions have been described and ADRs are mild and uncommon. When compared with finasteride it gives similar improvements in symptoms and flow measures but with minimal ADRs.⁴

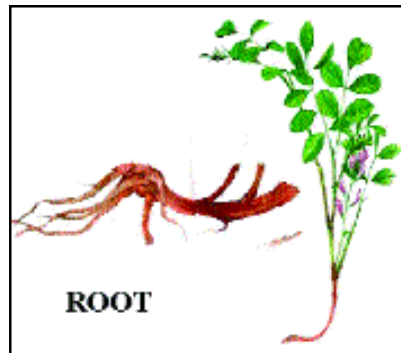


Fig. 4. *Licorice* (*Glycyrrhiza glabra*).

Ginseng (Fig. 3)

There are several species of ginseng. The Chinese or Korean variety (*Panax ginseng*) is used worldwide for its tonic action especially in the elderly. This has led to its misleading reputation as an aphrodisiac. In recent years it has been promoted as an adaptogen, i.e. a substance that is able to induce an increased resistance to stress (physical, mental, chemical or biological). The main active constituents appear to be the ginsenosides and are thought to achieve this adaptogenic response by promoting adrenal steroidogenesis, possibly via the pituitary-adrenal axis.

Opinion in the literature on the efficacy of ginseng varies from it being of virtually of no clinical use, to that of a panacea.⁵ The answer will more than likely lie with its adaptogenic potential (which has not as yet been adequately assessed by means of the appropriate trial methodology). The ADR rate is low and includes insomnia, diarrhoea, headaches and rashes. Ginseng may possess some oestrogenic activity which could explain the occasional case of mastalgia, nausea and vaginal bleeding.



Fig. 5. *Valerian* (*Valeriana officinalis*).

Licorice root (Fig. 4)

Licorice root is widely used in many of the schools of herbal medicine including Chinese medicine and Ayurveda. It acts as an anti-inflammatory and repairs tissue damage in the upper GI tract, as well as facilitating the expulsion of mucus from the respiratory tract. It has a mild laxative effect. Its tonic effect is derived mainly from its ability to mimic aldosterone by potentiating cortisol. Although not indigenous to South Africa, licorice is grown commercially in this country and has begun to be incorporated into traditional African medicine. The most important ADRs are hypertension, sodium and water retention and hypokalaemia.

Valerian (Fig. 5)

Valerian has a long history of traditional use as a sedative. The active

components appear to be valeric acid and the valepotriates. It may also be used in the treatment of insomnia, fatigue, abdominal cramps and migraines. Valerian is a safe herbal medicine with a low ADR and toxicity profile. These include mild headaches, uneasiness and palpitations.

Milk thistle

Milk thistle has been approved for use in cirrhosis, chronic inflammatory liver conditions and toxic liver damage.³ The main active ingredient appears to be silymarin, which has antioxidant properties as well as being able to increase hepatocyte protein synthesis and to inhibit lipid peroxidation.

Silymarin provides protection for the liver against a variety of hepatotoxins including drugs, viruses, mushroom poisoning and radiation. Patients with alcohol-induced cirrhosis appear to respond well to treatment with milk thistle.

There are few ADRs (occasional mild diarrhoea and allergic reactions) and no contraindications when using milk thistle. Diabetics should check their blood sugar levels as silymarin may lower the blood sugar level.

ARE THERE ANY PROBLEMS WITH HERBAL MEDICINES?

Herbals, like pharmaceuticals, have a wide range of applications and safety parameters. Some of the challenges that face phytotherapy include:

- **A lack of sufficient research especially in the areas of claims and safety of herbals** . Why the lack of evidence? Controlled studies are expensive, and if successful, patent protection on a plant-based product is not likely. Despite this, the body of research literature continues to grow. The

World Health Organisation has an interest in supporting and developing traditional healing practices and has suggested guidelines for the assessment of herbal medicines. These include: ‘In the absence of scientific documentation to the contrary, the historical use of a substance is a valid form of safety and efficacy information’.⁶

- **Quality issues** . To produce reliable herbal medicines of consistent quality is challenging. There are many critical steps in the production, ranging from correct plant selection, insecticide-free farming, variable climatic patterns, harvesting, transport to the factory, drying or extracting from the fresh plant, etc. As a result there is always potential for error. Good manufacturing practices (GMP) are essential in the production of quality herbals. Some of the pitfalls that exist include:
 - Misidentification: it is obviously vital that the correct plant sources are used in manufacture.
 - Adulteration: common adulterants include antihistamines, NSAIDs, benzodiazepines, paracetamol, caffeine and corticosteroids.
 - Substitution: can occur at several levels, e.g. within a species of a less active subspecies or of the wrong or less active plant part.
 - Contamination: with heavy metals (lead, arsenic, mercury, etc.), insecticide residues or microbial (e.g. *E.coli*, streptococci, *Salmonella* are fairly common and must be tested for).
- **Acute hypersensitivity reactions do occur** . They are almost invariably mild and may in fact account for many of the herbal so-called ‘ADRs’. These are idiosyncratic and therefore unpredictable.

- **Pregnancy and lactation.**

There is a paucity of long-term safety studies on most herbals. In addition, as a general principle, it is probably best to avoid all but the most essential medicines (both herbal and pharmaceutical) during pregnancy and lactation. The principle of ‘when in doubt leave it out’ applies.

THREE COMMON MISCONCEPTIONS ABOUT HERBAL MEDICINES

‘Herbals don’t work’

The current phytotherapy market is confusing in South Africa. There are many products available: some are manufactured to high standards of GMP and responsibly presented to the public, while others are of questionable quality and making multiple unsubstantiated claims. Like any medicine, herbals will generally work if they are used correctly and appropriately. They may appear to be slow-acting when compared with pharmaceutical agents. However herbals are often used for homeostatic purposes e.g. adaptogens (the ginsengs), circulation modulators (ginkgo), etc. These effects take some time to become established.

There are certain therapeutic categories where herbal medicine is generally less effective, e.g. there are few potent non-addictive analgesics available. The range of opiates derived from the opium poppy (*Papaver somniferum*) is obviously not suitable for the treatment of mild to moderate pain.

‘How can one herbal medicine treat so many diseases?’

Plants contain multiple components and therefore may have a number of therapeutic actions. They are polypharmaceutical in structure as opposed to the mainly single-substance basis of pharmaceutical medicines.

Table III. Advising patients on the use of herbal medicines

- Patients should always inform their practitioner, pharmacist or specialist of all herbals and supplements that they are taking
- A so called 'natural' product doesn't necessarily mean that it is a safe medicine
- Due to insufficient evidence on safety, herbals are generally not recommended in pregnancy and lactation
- Medicines should not be taken in larger-than-recommended doses
- Only use herbals in children and the elderly after obtaining professional advice
- Always choose quality products to ensure safety and efficacy
- Be aware of potential herb-drug interactions and be cautious of the combined use of herbals and pharmaceuticals
- Patients should be encouraged to report adverse effects and discontinue the herbal medicine if indicated

'Herbs are dangerous'

This statement may apply if herbals are used inappropriately, are contaminated or adulterated, etc. However, on balance they are generally safe. Having said that, dramatic reports and warnings have appeared in the press over the past few years concerning a number of commonly used herbs. These include echinacea, St John's wort and most recently kava. It is worth looking briefly at these claims.

• **Echinacea.** Serious ADRs were claimed for echinacea. At the time it was one of the most widely used herbals. There were, for example, several hundred products containing echinacea on the Australian market. This amounted to approximately 600 million doses over the preceding 3 years, yet only 37 minor ADRs were reported. A well-known brand accounting for 4.5 billion doses over the preceding 30 years of worldwide use, had only 55 minor ADRs reported. These were largely mild, short-lived allergic reactions. The ADR claims turned out to be spurious, but did considerable damage to this useful medicine.

• **St John's wort.** This commonly self-prescribed herbal has a low ADR profile despite the negative press it has received over recent years. These are almost invariably related to the occasional case of photosensitivity. Drug-herb interactions are the real issue with the use of St John's wort. These can be avoided if the medicine carries a warning and the patient is properly informed. It would probably be appropriate to put it under the direction of the pharmacist, i.e. a Schedule 2 medicine.

• **Kava.** Recently about 30 cases of 'liver toxicity' have been reported from some European centres in patients using kava (together with other medications). The data are still being assessed. In the interim it is important that kava be dispensed with the appropriate cautions about the concomitant use of alcohol, certain drugs and a history of liver disease.

ADVISING PATIENTS ON THE USE OF HERBAL MEDICINES

Patients usually get their information and guidance on CAMs from sources other than their pharmacist

or practitioner e.g. friends, newspapers, TV, the Internet etc. This information is not always reliable, particularly in the areas of ADRs, contraindications and drug-herb interactions. The present-day education of health professionals lacks any background in herbal medicine. As a result they often find themselves in a difficult position when confronted by patients and customers asking for advice.

Given the widespread use of herbals it is important that practitioners and pharmacists develop guidelines with which to advise patients using or considering the use of herbal medicines (see Table III).

HERBAL MEDICINES AND SURGERY

The patient's use of CAMs, including herbals and supplements, must be actively elicited and recorded prior to surgery. The perception that these are unimportant, non-therapeutic agents must change. This, coupled to the general tendency (up to 70% in some studies) of patients not to disclose their use of CAMs, makes for a potentially dangerous situation in the peri-operative period. Growing literature on herb-drug interactions exists and the hospital team should be aware of any potential problems that may be encountered with the commonly used herbals. As a general rule it is best to stop all herbals pre-operatively and re-start them after discharge (see Table IV).

CONCLUSIONS AND SUGGESTIONS

There is an urgent need for increased awareness of herbal medicines among health care workers. Equally, the public deserve access

Table IV. Herbal medicines and surgery

Herbal	Stop herbal	Reason
Echinacea	7 days pre-op	Allergic reactions. May cross-react with immunosuppressives
Garlic	7 days pre-op	Concern re post-op bleeding (antiplatelet effect)
Ginseng	7 days pre-op	May cause platelet inhibition
St John's wort	5 days pre-op	Multiple drug interactions
Ginkgo	36 h pre-op	Antiplatelet effect and vasodilation
Valerian	Just prior to op. Re-start post-op	Avoid abrupt withdrawal
Kava	24 h pre-op	Sedative effects

to top quality herbals, as well as accurate and appropriate information about these products.

- Some basic training should be added to the undergraduate curricula of practitioners, pharmacists and nurses. This could include the re-introduction of phytochemistry and pharmacognosy into the training of pharmacists.
- A short-term solution is required for health care workers already qualified and working. It would not be difficult to assist these groups to familiarise themselves with the 20 herbals most commonly used by patients. This is an excellent CME opportunity.
- Lists of suitable websites and reliable literature on herbal medicine should be made freely available to all stakeholders.
- Improve the standard of herbal medicines. Insist on proper labelling, package inserts with information on ADRs, warnings, contraindications and interactions.
- Clear guidelines are needed to help control inappropriate or unsubstantiated claims which may be made for these medications.⁹
- The reporting of ADRs and

herb-drug interactions to the drug control centres is essential. With time this information should appear on the package inserts of the relevant herbal and pharmaceutical products.

ACKNOWLEDGEMENTS

I would like to thank Mr Brent Murphy for his help in the preparation of the manuscript.

References and websites available on request.

FURTHER READING

Blumenthal M, Rister R, Goldberg A, *et al.* *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines.* Boston, MA: Integrative Medicine Communications, 1998.

Bradley PR, ed. *British Herbal Compendium, Vol 1.* Bournemouth: British Herbal Medicine Assoc, 1992.

Jellin JM, ed. *Natural Medicines Comprehensive Database,* 4th ed. Stockton, CA: Therapeutic Research Faculty, 2002.

Mills S, Bone K. *Principles and Practice of Phytotherapy. Modern Herbal Medicine.* Edinburgh: Churchill Livingstone, 2000.

Mowrey DB. *Next Generation Herbal Medicine.* 2nd ed. Connecticut: Keats, 1990.

Weiss RF. *Herbal Medicine,* 6th ed. Beaconsfield: Beaconsfield Arcanum, 1998.

Wichtl M, ed. *Herbal Drugs and Phytopharmaceuticals. A Handbook for Practice on a Scientific Basis,* 2nd ed. Stuttgart: Medpharm, 2001.

Williamson EM, Evans FJ, eds. *Potter's New Cyclopedia of Botanical Drugs and Preparations.* 9th ed. Essex: CW Daniels, 1998.

IN A NUTSHELL

Herbal medicines are products which contain exclusively plant material and/or vegetable drug preparations as active ingredients.

In the past there has been a move away from plant-based medicine, but a move back to phytotherapy is now evident from statistics on patient spending.

The herbal remedies used in South Africa include St John's wort, garlic, kava, ginkgo, saw palmetto, licorice root, valerian, milk thistle and evening primrose.

Problems with herbal medicines include:

- lack of sufficient research
- quality issues: misidentification, adulteration, substitution and contamination
- hypersensitivity reactions
- lack of safety studies in pregnancy and lactation.

Misconceptions about herbal remedies:

- herbals don't work
- misunderstanding of how one medicine can cure many conditions
- herbs are dangerous.

Practitioners and pharmacists should develop guidelines for advising patients about the use of herbal remedies.

Patients **must** be actively questioned and encouraged to inform practitioners of **all** herbal remedies they are taking, particularly prior to surgery, or to prescription of other medication.

Training of health care professionals, education of patients, improvement of quality assurance, guidelines for claims made for the medications, and reporting of ADRs are all urgently needed.