



# THERAPEUTICS INITIATIVE

Evidence Based Drug Therapy

## Herbal Medicines An Evidence Based Look

The medical use of herbs is widespread. In a multi-ethnic group of patients attending an emergency department in New York 22% reported that they used herbal medicines; use was highest among Asians (37%).<sup>1</sup> **It is important therefore for clinicians to document use of herbal medicines as part of the patient's drug profile.** Plants synthesize complex (organic) molecules for their structure and function, and therefore are a rich source of chemicals. Active chemicals purified from plants are accepted effective medications e.g. digoxin, and morphine. **When parts of plants or crude extracts of plants are used for medicinal purposes they are called herbal medicines.**

### What problems are specific to herbal medicines?

#### What is the active ingredient?

Most herbal medicines contain hundreds of chemicals and there is often no agreement as to which are potentially active. An example is garlic, comprised of many sulfur compounds, several of which are candidates for possible therapeutic activity.<sup>2</sup>

#### How can one be sure that herbal medicines contain what is on the label?

The only regulatory requirements in Canada are that all products intended for medicinal use, including natural health products, are issued a Drug Identification Number. These numbers are not required for raw materials such as bulk herbs. Herbal medicines are not required to pass any regulatory analysis to be sold as a health food supplement. **There are many examples of herbal medicines that have been adulterated with other (more toxic) herbs, potent drugs (e.g. phenylbutazone<sup>3</sup>, synthetic corticosteroids and other prescription drugs), or heavy metals<sup>4</sup>.**

#### How are herbal medicines standardized?

The chemical constituents of plants vary depending on the species, variety and part of the plant, with conditions of growth (soil, water and temperature), and with the age of the plant. **These complexities and variations of chemical content make standardization essential.** In some cases standardization is attempted, but it is difficult and seldom accomplished.



### How can effectiveness be determined?

To establish the effectiveness of herbs as medicines, they must be tested in prospective, double blind, randomized, placebo-controlled clinical trials (RCTs). **Relatively few herbs have been tested in this manner.**

### Do herbal medicines cause adverse effects?

There is a general conception that, because herbs are "natural", they are completely safe. This is not true. **Herbs and herbal preparations can cause toxic adverse effects<sup>4-7</sup>, serious allergic reactions<sup>8</sup> and adverse drug interactions<sup>6,9</sup>, and can interfere with laboratory tests.<sup>10</sup>**

### What herbal medicines are most commonly used by patients?

The Table provides an alphabetical list of some common herbal medicines with their traditional indications, present RCT evidence of effectiveness, and some known adverse effects. At the present time none of the RCT evidence of effectiveness can be considered conclusive; trials where some benefit over placebo has been shown require confirmation with larger trials of longer duration. There is very little data available for long term safety.

### Summary

Plants are rich sources of chemicals and potential sources of effective medicines. **However, more research, regulation, and standardization are required before herbal medicines can be recommended as effective and safe therapies.**



**Table: Herbal Medicines - A brief summary of present evidence.**

Common Name <i>Botanical Name</i>	Traditional Use	RCT #	Result as compared to placebo	Adverse Effects	Ref.
Chamomile, German <i>Chamomilla recutita</i>	Tonic Mouthwash, oral mucositis	0 1	=	Allergy	8,11
Devils Claw <i>Harpagophytum procumbens</i>	Antirheumatic (Low back pain)	1	=		12
Echinacea <i>Echinacea purpurea</i>	Immune stimulant (upper respiratory infections)	2	?↑	Allergy	8,13,14
Evening Primrose <i>Oenothera biennis</i>	Atopic dermatitis	5	2↑, 3=		15-19
	Rheumatoid arthritis	3	?↑		20-22
	Psoriatic arthritis	1	=		23
	Premenstrual syndrome	2	=		24,25
	Menopausal flushing	1	=		26
	Obesity	1	=		27
	Ulcerative colitis	1	=		28
	Hyperactivity	2	=		29,30
	Raynaud's syndrome	1	=		31
	Sjögren's syndrome	1	=		32
Psoriasis	2	=		23,33	
Feverfew <i>Tanacetum parthenium</i>	Migraine	2	↑	Allergy	34,35
	Rheumatoid arthritis	1	=		36
Garlic <i>Allium sativum</i>	BP. Lowering	7	?↑	Halitosis	37
	Cholesterol lowering	17	?↑		38-40
Ginger <i>Zingiber officinale</i>	Seasickness	1	=		41
	Hyperemesis gravidarum	1	↑		42
	Post - op N/V	3	2↑, 1=		43-45
EGb 761 <i>Ginkgo biloba</i>	Dementia progression	5	↑	Bleeding	9,46-50
	Tinnitus	2	1↑, 1=		51
American Ginseng <i>P. quinquefolium</i>	Exercise performance	1	=		54
Korean Ginseng (G115®) <i>Panax Ginseng</i>	Exercise performance	2	=		52, 53
	Psychomotor performance	1	=		57
	Flu Vaccine Immun. Resp.	1	↑		56
Siberian Ginseng <i>Eleutherococcus senticosus</i>	Exercise performance	1	=		41
Saint John's Wort <i>Hypericum perforatum</i>	Antidepressant	2	↑	Skin photo-sensitivity	58, 59
Saw Palmetto (Pemixon®) <i>Serenoa repens</i>	Prostatic hyperplasia	2	↑		60, 61 Letter 19
Zemaphyte® <i>Ten Herbs</i>	Atopic eczema	1	↑	Liver toxicity	62, 63

↑ Benefit as compared to placebo, ?↑ Reported benefit unlikely (due to design or analytical flaw), = Same as compared to placebo.

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Please note the following **correction** to Therapeutics Letter 24 (April/May 1998) in Table 2: the daily dose range for pravastatin (Pravachol®) should be 10 - 40 mg and the average daily cost \$0.93 - \$2.23.

This Therapeutics Letter contains an assessment and synthesis of published (and whenever possible peer-reviewed) publications up to Aug1,1998. We attempt to maintain the accuracy of the information contained in the Therapeutics Letter by extensive literature searches and verification by both the authors and the editorial board. In addition this Therapeutics Letter was submitted for review to 55 experts and primary care physicians in order to correct any identified shortcomings or inaccuracies and to ensure that the information is concise and relevant to clinicians.

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