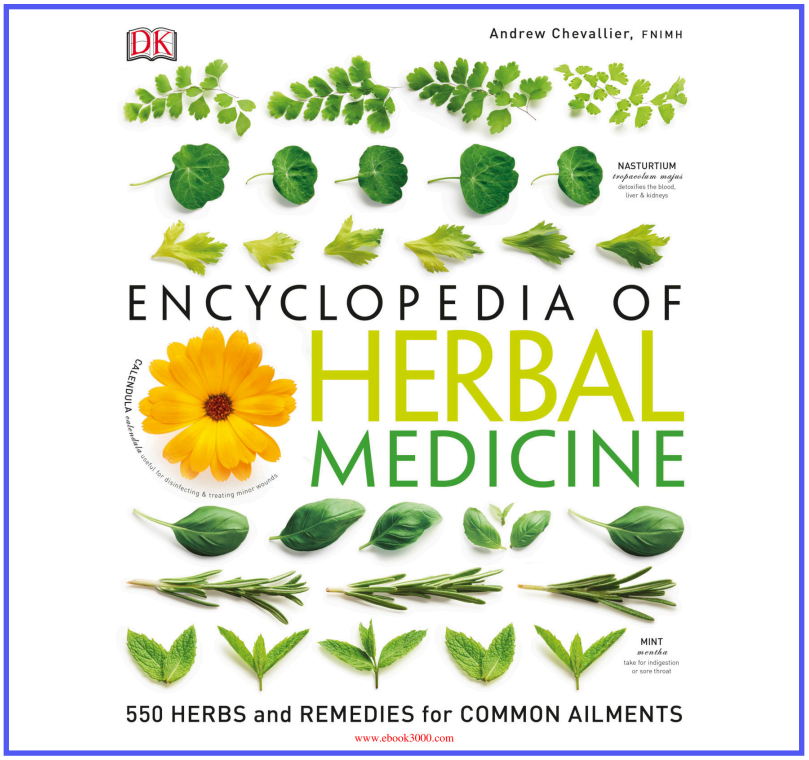


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Do not try self-diagnosis or attempt self-treatment for serious or long-term problems without first consulting a qualified medical herbalist or medical practitioner as appropriate. Do not take any herb without first checking the cautions in the relevant herb entry (see pp. 56–283) and the Essential Information on pp. 298–299. Do not exceed any dosages recommended. Always consult a professional practitioner if symptoms persist. If taking prescribed medicines, seek professional medical advice before using herbal remedies. Take care to correctly identify plants and do not harvest restricted or banned species. So far as the author is aware, the information given is correct and up to date as of July 2016. Practice, laws, and regulations all change, and the reader should obtain up-to-date professional advice on any such issues. In addition, this book contains general information on growing cannabis, which is a controlled substance in North America and throughout much of the world. As the use and cultivation of cannabis and its derivative products can carry heavy penalties, you should research your local laws before using the information in this book. The author and the publisher expressly disclaim any liability, loss, or risk, personal or otherwise, which is incurred as a consequence, directly or indirectly, of the use and application of any of the contents of this book.

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Contents

6 Introduction

8 THE DEVELOPMENT OF HERBAL MEDICINE

10 How Medicinal Plants Work
14 Active Constituents
17 Quality Control
18 Early Origins to the 19th Century
28 20th Century Onward
32 Herbal Traditions of the World
- 32 Europe
- 36 India and the Middle East
- 40 China, Japan, and Southeast Asia
- 44 Africa
- 46 Australia and New Zealand
- 48 North America
- 52 South America

54 KEY MEDICINAL PLANTS

A visual guide to 100 key herbs from around the world with details of their habitat, constituents, actions, traditional and current uses, and information on the latest research. Also included are key preparations and practical self-help uses.

156 OTHER MEDICINAL PLANTS

450 other herbs from different herbal traditions with descriptions of their therapeutic properties and past and present uses.

284 HERBAL REMEDIES FOR HOME USE

286 Growing Medicinal Plants
288 Harvesting & Processing
290 Making Herbal Remedies
298 Using Herbal Remedies Safely
299 Remedies for Common Ailments
320 Consulting an Herbal Practitioner

321 Glossary
322 Bibliography
323 General Index
332 Index of Herbs by Ailment
336 Useful Addresses & Acknowledgments



Introduction

In the twenty years since the first edition of this encyclopedia in 1996, herbal medicine has gone through unprecedented change. Herbs, which have always been the principal form of medicine in developing countries, have again become popular in the developed world, as people strive to stay healthy in the face of chronic stress and pollution, and to treat illness with medicines that work in concert with the body's defenses. A quiet revolution has been taking place. Tens of millions of people now take herbs such as ginkgo (*Ginkgo biloba*, p. 100) to help maintain mental and physical health, and increasingly people consult trained herbal professionals and naturopaths for chronic or routine health problems. Increasingly too, scientific evidence is accumulating to show that herbal medicines can provide treatment that is as effective as conventional medicines but with few side effects. Sales of herbal medicines continue to grow year after year—by over 50 percent in the U.S. since 2000—and several mainstream pharmaceutical companies now manufacture and market herbal medicines.

Plant Medicines

The variety and sheer number of plants with therapeutic properties are quite astonishing. Some 50,000 to 70,000 plant species, from lichens to towering trees, have been used at one time or another for medicinal purposes. Today, Western herbal medicine still makes use of hundreds of native European plants, as well as many hundreds of species from other continents. In Ayurveda (traditional Indian medicine) about 2,000 plant species are considered to have medicinal value, while the Chinese *Pharmacopoeia* lists over 5,700 traditional medicines, mostly of plant origin.

About 500 herbs are still employed within conventional medicine, although whole plants are rarely used. In general, the herbs provide the starting material for the isolation or synthesis of conventional drugs. Digoxin, for example, which is used for heart failure, was isolated from common foxglove (*Digitalis purpurea*, p. 202), and the contraceptive pill was synthesized from constituents found in wild yam (*Dioscorea villosa*, p. 91).

Ecological Factors

The increased use of medicinal herbs has important environmental implications. Growing herbs as an organic crop offers new opportunities for farmers, and sometimes, especially in developing countries, opportunities for whole communities. In northeastern Brazil, for example, community-run herb gardens grow medicinal herbs that are sold to local hospitals. Doctors at the hospital then prescribe these medicines for their patients.

The rise in popularity of herbal medicines, however, also directly threatens the survival of some wild species. Demand for goldenseal (*Hydrastis canadensis*, p. 105) has become so great that it now fetches around $140 a pound (£170 a kilo). It was a common plant in the woodlands of northern America two centuries ago, but is now an endangered species, with its survival in the wild threatened by overcollection. This example is by no means unique, and, sadly, many species are similarly threatened across the planet. The extinction of plant species as a result of over-intensive collecting is nothing new. The herb silphion, a member of the carrot family, was used extensively as a contraceptive by the women of ancient Rome.

Silphion proved difficult to cultivate and was gathered from the wild in such large quantities that it became extinct during the 3rd century CE.

Today, if herbal medicine continues to grow at its present rate, it is imperative that manufacturers, suppliers, practitioners, and the public use only produce that has been cultivated or wildcrafted in an ecologically sensitive manner.

About This Book

In the past, books on herbal medicine have tended to focus either on the traditional and folkloric use of plants or on their active constituents and pharmacology. *The Encyclopedia of Herbal Medicine*, which features over 550 plants, aims to cover both aspects. It discusses each plant's history, traditions, and folklore, and explains in simple terms what is known from scientific research about its active constituents, actions, and potential new uses.

It is easy when concentrating on the scientific aspect of herbal medicine to forget that much, in some cases *all*, that we currently know about a particular plant results from its traditional use. Moreover, even when a plant has been well researched, herbal medicines are so complex and variable that what is currently known is rarely definitive, but rather a sound pointer as to how it works. Sometimes the traditional use, insofar as it is based on the experience of practitioners, provides an insight into how best to use an herb that is missing from scientific knowledge alone. Herbal medicine is, after all, both a science *and* an art.

In choosing the plants profiled in the *Encyclopedia*, the aim has been to select herbs that are commonly used in different parts of the world and are considered to have particular health benefits. The index of key medicinal plants (pp. 54–155) contains many herbs that are readily available in health stores and pharmacies, for example St. John's wort (*Hypericum perforatum*, p. 106). It also includes herbs that are more commonly known as foods, such as lemon (*Citrus limon*, p. 82), but which, nonetheless, are valuable medicines. The index of other medicinal plants (pp. 156–283) contains some less commonly known but important medicinal herbs, such as andrographis (*Andrographis paniculata*, p. 167), a traditional Indian medicinal plant that stimulates recovery from infection and supports normal liver function.

A global overview of the history of herbal medicine puts the development of different herbal traditions from earliest origins to the present day into perspective. This is complemented with features on herbal medicine in Europe, India, China, Africa, Australia, and the Americas, providing a rounded picture of herbal medicine worldwide.

Herbal medicine is nothing if not practical in its approach, and the *Encyclopedia* has a detailed self-help section with advice on preparing and using herbal medicines to treat a range of common health problems.

If more people come to appreciate the immense richness of the world of herbal medicine and are able to benefit from the curative properties of medicinal herbs, this book will have ach[illegible]







THE DEVELOPMENT OF HERBAL MEDICINE

From the earliest times, herbs have been prized for their pain-relieving and healing abilities, and today we still rely on the curative properties of plants in about 75 percent of our medicines. Over the centuries, societies around the world have developed their own traditions to make sense of medicinal plants and their uses. Some of these traditions and medicinal practices may seem strange and magical, others appear rational and sensible, but all are attempts to overcome illness and suffering, and to enhance quality of life.

"A wise man ought to realize that health is his most valuable possession."

Hippocrates





Many of the thousands of plant species growing throughout the world have medicinal uses, containing active constituents that have a direct action on the body. They are used both in herbal and conventional medicine and offer benefits that pharmaceutical drugs often lack, helping to combat illness and support the body's efforts to regain good health.

There is no doubt that in extreme situations, the treatments devised by modern medicine can offer an unparalleled opportunity to relieve symptoms and save lives. A newspaper article in 1993 described the terrible conditions in a hospital in war-torn Sarajevo, the capital of Bosnia-Herzegovina. Deprived of conventional medical supplies and drugs, the doctors were forced to use a well-known European herb, valerian (*Valeriana officinalis*, p. 148), as a painkiller for the wounded and as an anesthetic. Valerian is an effective herbal medicine for anxiety and nervous tension, but it is woefully inadequate as an analgesic or anesthetic.

Orthodox pharmaceutical medicines sustain life and counter infections in situations where other types of treatment may have little to offer. Modern surgical techniques, such as keyhole surgery and plastic surgery, and the whole range of diagnostics and of life-support machinery now available, can all be used to improve the chances of recovery from serious illness or injury.

The Benefits of Herbal Medicine

Yet despite the dramatic advances and advantages of conventional medicine, or biomedicine as it is also known, it is clear that herbal medicine has much to offer. We tend to forget that in all but the past 70 years or so, humans have relied almost entirely on plants to treat all manner of illnesses, from minor problems such as coughs and colds to life-threatening diseases such as tuberculosis and malaria.



Opium poppy *fields in Tasmania. Opium, derived from the seed capsules of the opium poppy, yields the narcotic alkaloids morphine and codeine, powerful painkillers that are*

Today, herbal remedies are coming back into prominence because the efficacy of conventional medicines such as antibiotics, which once had near-universal effectiveness against serious infections, is on the wane. Over the years, infectious organisms have developed resistance to synthesized drugs, and the herb sweet wormwood (*Artemisia annua*, p. 67) and its active constituent artemisinin, for example, are now the standard treatment for malaria in tropical areas where the protozoa causing the infection no longer respond to conventional treatment.

Herbal medicine often complements conventional treatments, providing safe, well-tolerated remedies for chronic illnesses. It is experiencing a dramatic renaissance in Western countries, partly because no effective conventional treatment as yet exists for many chronic illnesses, such as asthma, arthritis, and irritable bowel syndrome. In addition, concern over the side effects of biomedicine is encouraging people to look for more gentle forms of treatment. It is estimated that 10–20% of hospital patients in the West are there due to the side effects of conventional medical treatment.

Using Herbs Wisely

Most commonly used herbs are extremely safe to use. But some plants can produce side effects and, like all medicines, herbal remedies must be treated with respect. It is essential to take or use certain plants only under the guidance of a well-trained practitioner, to avoid adverse consequences. Ma huang (*Ephedra sinica*, p. 95), for example, can be extremely toxic at the wrong dosage, and comfrey (*Symphytum officinale*, p. 138), a very popular herb in the past, is thought to cause severe or even fatal liver damage in rare circumstances. When an herbal medicine is used correctly, however, the chances of developing a serious side effect are remote.

Potent Plant Chemicals

The ability of an herbal medicine to affect body systems depends on the chemical constituents that it contains. Scientists first started extracting and isolating chemicals from plants in the 18th century, and since that time we have grown accustomed to looking at herbs and their effects in terms of the active constituents they contain. This *Encyclopedia* is no exception, providing details of all the main active constituents of the medicinal herbs featured and explaining



***Ginkgo**, one of the oldest known plant species, improves the circulation of blood to the head.*

Research into isolated plant constituents is of great importance, for it has given rise to many of the world's most useful drugs. Tubocurarine, the most powerful muscle relaxant in existence, is derived from pareira (*Chondrodendron tomentosum*, p. 189), and the strongest painkiller of all, morphine, comes from opium poppy (*Papaver somniferum*, p. 244). Many anesthetics are also derived from plants—for example cocaine comes from coca (*Erythroxylum coca*, p. 206).

Today, biomedicine still relies on plants rather than the laboratory for at least 25% of its medicines, and many of these are among the most effective of all conventional drugs. It is hard to think of a world deprived of the antimalarial properties of quinine (derived from *Cinchona* spp., p. 80); or the heart remedy digoxin (from *Digitalis* spp., p. 202); or the cough-relieving properties of ephedrine (from *Ephedra sinica*, p. 95), which is present in many prescription and over-the-counter cold remedies. These and many other conventional medicines are all derived from isolated plant constituents.

Value of Whole Plants

Although it is important to understand the actions of individual active constituents, herbal medicine, unlike biomedicine, is ultimately about the use and actions of whole plants—medicines that are literally god- or goddess-given,



***Cultivation of medicinal plants** in Cameroon. Scientific research indicates that whole-plant preparations may often be gentler and more effective remedies*

rather than developed in a laboratory. In the same way that taking a watch apart and identifying its key parts will not show you how it works as a whole, dividing up a medicinal herb into its constituent parts cannot explain exactly how it works in its natural form. The whole herb is worth more than the sum of its parts, and scientific research is increasingly showing that the active constituents of many herbs, for example those in ginkgo (*Ginkgo biloba*, p. 100), interact in complex ways to produce the therapeutic effect of the remedy as a whole.

Plants contain hundreds, if not thousands, of different constituent chemicals that interact in complex ways. Frequently, we simply do not know in detail how a particular herb works—even though its medicinal benefit is well established. The pharmacological approach to understanding how whole herbs work is like working on a puzzle where only some of the pieces have been provided. Furthermore, although it is very useful to know that a plant contains certain active constituents, such information can be misleading on its own. For example, Chinese rhubarb (*Rheum palmatum*, p. 126) is a commonly used laxative, containing anthraquinones that irritate the gut wall and stimulate bowel movement. This laxative effect, however, occurs only when large quantities of the herb are used. At lower doses other constituents, notably tannins, which dry and tighten up mucous membranes in the gut, have greater effect. As a result, Chinese rhubarb works in two apparently opposite ways depending on the dosage: as a laxative at moderate to high doses; to treat diarrhea at a lower dose.

This example reveals a couple of fundamental truths about herbal medicine. Firstly, the experience of the herbal practitioner and of the patient often provide the most reliable guide to the medicinal effect of individual herbs. Secondly, the value of a medicinal herb cannot be reduced simply to a list of its active constituents.

Plants as Foods & Medicines

In general, the human body is much better suited to treatment with herbal remedies than with isolated chemical medicines. We have evolved side-by-side with plants over hundreds of thousands of years, and our digestive system and physiology as a whole are geared to digesting and utilizing plant-based foods, which often have a medicinal value as well as providing sustenance.

The dividing line between "foods" and "medicines" may not always be clear. Are lemons, papayas, onions, and oats foods or medicines? The answer, very simply, is that they are both. Lemon (*Citrus limon*, p. 82) improves resistance to infection; papaya (*Carica papaya*, p. 183) is taken in some parts of the world to expel worms; onion (*Allium cepa*, p. 164) relieves bronchial infections; and oats (*Avena sativa*, p. 175) support convalescence. Indeed, herbal medicine comes into its own when the distinctions between foods

Though we might eat a bowl of oatmeal oblivious to the medicinal benefits, it will, nonetheless, increase stamina, help the nervous system to function correctly, provide a good supply of B vitamins, and maintain regular bowel function. A similar range of benefits is provided by many of the other gentler-acting herbs listed in the *Encyclopedia*.

Herbal Treatments

The strategies that herbal practitioners adopt to prevent illness or restore health in their patients are different in the many and varied herbal traditions across the planet, but the effects that herbal medicines have within the body to improve health do not vary. There are many thousands of medicinal plants in use throughout the world, with a tremendous range of actions and degrees of potency. Most have a specific action on particular body systems and are known to be suitable for treating certain types of ailments. See p. 13 for specific actions.

Digestion, Respiration, & Circulation

Improving the quality of the diet is often an essential starting point in sustaining or regaining good health. The saying "You are what you eat" is by and large true, though herbalists prefer to qualify it, saying "You are what you *absorb* from what you eat." Herbal medicines not only provide nutrients, but when needed they also strengthen and support the action of the digestive system, speeding up the rate of processing food and improving the absorption of nutrients.

The body requires another kind of "nutrient" to function—oxygen. The lungs and respiratory system can be helped with herbs that relax the bronchial muscles and stimulate respiration.

Once taken in by the body, nutrients and medicines are carried to the body's estimated one hundred trillion cells. The circulatory system has a remarkable ability to adapt to an endlessly shifting pattern of demand. At rest, the flow of blood is mainly toward the center of the body, while when active, the muscles in the limbs make huge demands. Herbal medicines work to encourage circulation in particular ways. Some, for example, encourage blood to flow to the surface of the body; others stimulate the heart to pump more efficiently; while others relax the muscles of the arteries, lowering blood pressure.

Clearing Toxicity & Soothing Skin

After circulation has carried nutrients to the cells, waste matter must be removed. All too often in our polluted world, high levels of toxicity in the body are an underlying cause of ill health, and herbalists use a wide range of cleansing herbs that improve the body's ability to remove toxins. Perhaps the finest example of a detoxifying herb is burdock (*Arctium lappa*, p. 65), which is used extensively in both Western and "load," the body is able to invest greater resources in repairing and strengthening damaged tissue and weakened organs.

The skin also plays an important role in good health. Antiseptic plants fight infection, while vulnerary (wound-healing) herbs such as comfrey (*Symphytum officinale*, p. 138) encourage blood clotting and help speed the healing of wounds.

Nervous, Endocrine, & Immune Systems

Good health depends on having a healthy, balanced nervous system. In order to ensure long-term good health of the nervous system, it is important to adapt well to life's daily demands, to avoid excessive anxiety, worry, or depression, and to get sufficient rest and exercise.

The latest research shows that the nervous system does not work in isolation but is complemented by the endocrine system, which controls the release of a whole symphony of hormones, including the sex hormones, which control fertility and often affect vitality and mood. The nervous system is also intimately linked with the immune system, which controls the ability to resist infection and to recover from illness and injury.

This incredible complex of systems—part electrical, part chemical, part mechanical—must function harmoniously if good health is to be maintained. In health, the body has a seemingly infinite capacity, via its controlling systems, to adjust and change to external pressures. This ability to adapt to the external world while the body's internal workings remain constant is known as *homeostasis*. Many herbs work with the immune, nervous, and endocrine systems to help the body adapt more effectively to stresses and strains of all kinds: physical, mental, emotional, and even spiritual. They are effective because they work in tune with the body's processes.

Some herbs are *adaptogenic*, meaning that they have an ability to help people to adapt, either by supporting the nervous system and easing nervous and emotional tension, or by working directly with the body's own physiological processes to maintain health. The prime example of an adaptogenic herb is ginseng (*Panax ginseng*, p. 118), which is an effective remedy at times of great mental or physical stress, but in certain cases can also be taken when a relaxing effect is required, for example to relieve headaches, or to ensure a good night's sleep.

Complex Natural Medicines

As can be seen, an herb is not a "magic bullet" with a single action, but a complex natural medicine composed of many active constituents that work on different body systems. By combining scientific research into active constituents with clinical observation and traditional knowledge of the whole plant, we can develop a rounded picture of each herb's range