

MEDICINAL PLANTS OF THE WORLD



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An illustrated scientific guide to
important medicinal plants and their uses

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IMPORTANT WARNING

This book contains general information about medicinal plants and their uses. It is intended as a scientific overview and not as a medical handbook for self-treatment. Several medicinal plants described in this book have toxic ingredients and may cause severe allergic reactions or serious poisoning. Neither the authors nor the publishers can be held responsible for claims arising from the mistaken identity of plants or their inappropriate use. **Do not attempt self-diagnosis or self-treatment.** Always consult a medical professional or qualified practitioner.

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PREFACE

The aim of this book is to give the reader a bird's eye view of more than 350 of the best-known medicinal plants of the world and their uses, in a compact, colourful and scientifically accurate reference text. A comprehensive review of each species was not our aim (this would have required several thousand pages) but rather a user-friendly guide to quickly find accurate answers to the most obvious questions: Where does this plant originate? What does it look like? In which culture is it traditionally used? What is it used for? Which chemical compounds does it contain? How safe is it? What is known about its pharmacological activity? What evidence is there that it is effective? We also provide short overviews of the various health conditions for which medicinal plants are used and the active compounds (secondary metabolites) found in the plants and their modes of actions.

Since maximum user-friendliness was our aim, species are arranged alphabetically by their scientific names (not by their family or drug names). The most commonly used vernacular names are given in several languages, together with well-known botanical synonyms. The regulatory status of each plant is also given – whether it is listed in one or more pharmacopoeias (abbreviated as “pharm.”), including the new European Pharmacopoeia (abbreviated as “PhEur8”), the German Commission E monographs, the new ESCOP monographs of the European Community, the World Health Organisation's series of monographs and HMPC monographs of the European Committee on Herbal Medicinal Products (all species treated in the last-mentioned four works will be found in this book). If efficacy has been proven in human clinical trials, this is also indicated. In order to have as wide a coverage as possible, a summary table of more than 900 species was added, and a few plants have been treated as main species despite a lack of good photographs of flowers or fruits. We also thought it would be useful to cover those plants that are sources of medically important chemical compounds (see summary on pages 22 and 23) – they are not really used as plant drugs and are therefore often excluded from books on medicinal plants.

The subject of medicinal plants is a highly active field of scientific study all over the world. Ongoing research, including name changes, makes it virtually impossible to keep up to date with all aspects of this vast topic. Furthermore, some species may actually have become more important than we are aware of, while others are now merely of historical interest. Corrections, criticism, additions and offers of high-quality original photographs would therefore be highly appreciated and can be sent to any of the authors.

The first edition of this book was published more than 10 years ago. The need therefore arose for a complete revision in order to reflect modern developments and to include new scientific data that have become available in recent years. This new and enlarged edition includes 28 new monographs of species and more than 230 new photographs.

Medicinal plants are an important part of human history, culture and tradition. Let us not be too sceptical about seemingly outrageous claims that are sometimes made about particular plants. Several centuries ago, lime fruits were given to British seamen who miraculously recovered from the symptoms of scurvy. It took science about 200 years to find out why (the discovery of vitamin C). It is likely that some traditional medicinal plants included here hold the key to new advances of great importance to human health. We hope that this book will be found useful as a quick reference guide to medicinal plants of the world and that it will stimulate and inspire health care practitioners, students and anyone else interested in medicinal plants to find out more about this fascinating subject.

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February 2017

INTRODUCTION

Medicinal plants and plant-derived medicine are widely used in traditional cultures all over the world and they are becoming increasingly popular in modern society as natural alternatives or supplements to synthetic chemicals. As more and more natural remedies are being commercialised, there is a need for a user-friendly but scientifically accurate reference guide to the plants and their products. This book is a **photographic guide to the most commonly used and best known medicinal plants of the world**, including their botany, main traditional uses, active ingredients, pharmacological effects and evidence of efficacy (if known). The biological activity of many medicinal plants has become known through scientific research and any literature search (via the Internet, for example), would reveal that numerous new publications are added to the scientific literature every day. There is simply no space to allow for a comprehensive literature list for the more than 350 plants and their relatives treated and illustrated in this book. The reader can consult the list of Further Reading (p. 485) for further information. The Internet has also become a convenient and useful source of information (e.g. Wikipedia).

Natural products and their derivatives (including antibiotics) represent more than 50% of all drugs in clinical use in the world. Higher plants contribute no less than 25% to the total. Well-known examples of plant-derived medicines include quinine, morphine, codeine, colchicine, atropine, reserpine and digoxin (see table on page 22). Recently, important anticancer drugs such as paclitaxel (taxol) and vincristine have been developed from plants. Health shops and pharmacies all over the world are experiencing a rapidly growing interest in healthy living, self-medication and natural remedies. The international consumer market for herbs and botanicals alone is estimated at about US\$ 18 billion, which is just under half of the total market for supplements (including vitamins, minerals, homoeopathic products and sports supplements), estimated at more than US\$ 50 billion.

How do medicinal plants work? An overview of the various active ingredients (secondary metabolites, p. 407) is provided in an attempt to clarify the complexity of metabolic effects caused by medicinal plants. Phytomedicines often contain a mixture of substances that have additive or even synergistic effects, so that the health benefits are difficult to test and verify. Plant medicine or phytomedicine may have subtle effects on several different biochemical pathways and receptors in the body-mind continuum that may all contribute directly and indirectly to restore equilibrium and balance. It is hard to dismiss medical claims of safety and efficacy when a plant medicine has been used in traditional cultures for centuries without evidence of serious side-effects. Research results generated over the last few decades have given us a much better understanding of the scientific rationale behind many natural remedies.

A section is also included on the various health conditions (p. 381) that are treated with medicinal plants. In traditional cultures, plant products are used in combination with psychological treatments in an integrated, holistic approach to primary health care. The psychological part of the treatment often takes the form of magical, ritual, spiritual or symbolic practices that are difficult to understand when taken out of their cultural contexts. Our modern formulations, too, can deviate quite often from the traditional form. The use of alcoholic extracts (tinctures) instead of traditional watery extracts (infusions) for example, may result in ineffective treatment or even harmful side-effects. As with all medicine, the correct dosage form and desirable level(s) of active ingredients are key elements in treating ailments or disorders and maintaining health.

A checklist of commercial medicinal plants is provided (p. 433), giving the correct scientific name, common name(s), family, origin, main compounds, main actions and main uses of more than 900 medicinal plants. To further enhance the general utility of the book, a glossary of medical terms (p. 477) is provided.